The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 72, NO. 1 CHICAGO, ILLINOIS JANUARY 4, 1919

SODIUM CITRATE TRANSFUSIONS

A STUDY OF ONE HUNDRED CASES *

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So much has been said for and against the transfusion of blood mixed with sodium citrate that it is important for every one who has had experience with this method to publish his results. I shall record 100 transfusions on sixty-eight patients.

TECHNIC

It is not essential to review the literature referring to the various modifications of Lewisohn's original technic. In our series, the blood was usually collected into two large measuring beakers, each one holding 600 c.c. or more. The blood was then filtered through gauze directly into an infusion flask or arsphenamin apparatus and allowed to run into the vein of the patient. Several technical points are of importance:

1. A large caliber cannula is used to get the blood from the donor so that the required quantity of blood is obtained in as short a time as possible.

2. A large cannula is also used for the recipient with the same object in view. Naturally, there are limitations to this rate, depending on the particular illness or condition of the patient; for example, cardiac or pulmonary disturbances demand a slower current of blood, etc.

3. The blood should be kept at body temperature while it is outside of the body and kept outside of the body as short a time as possible. This can be assured by transferring the blood from the receptacles in which it was collected into Erlenmeyer flasks or bottles, and these can be placed into a basin of warm water. Lewisohn has recently advised the use of vacuum bottles.

4. Although it is absolutely essential to keep stirring the blood and citrate solution so as to mix them thoroughly and thus prevent coagulation, it is equally important not to stir too vigorously in fear of the possible physical destruction of the various blood constituents.

5. The sodium citrate must be chemically pure and the water in which it is dissolved freshly distilled.

SELECTION OF DONORS

The usual agglutination and hemolysis tests were done as a preliminary step to all transfusions. In no instance was an incompatible blood employed. The results of the transfusions showed that blood tests in vitro were an absolute index to the compatibility of the blood in vivo, as no symptoms of blood destruction, such as hemoglobinuria, were obtained. I believe that there is no more doubt as to the desirability of blood tests before transfusion. Naturally, in instances in which the proper donors cannot be procured or procured rapidly enough, the transfusion should not be omitted if its indications are extremely urgent as a life-saving measure. The risk of disturbances due to incompatibility may be taken, and under such circumstances it is wiser to select a donor whose serum agglutinates or hemolyzes the red blood cells of the patient rather than a donor whose red blood cells are acted on by the patient's serum.

In performing our agglutination and hemolysis tests, I employ the macroscopic method, in which 0.15 c.c. of serum (3 drops) from the patient is mixed in a small test tube with 0.05 c.c. (1 drop) of a 10 per cent. red blood cell emulsion from the donor and vice versa. The mixtures are incubated for three hours, placed in the ice box for twenty-four hours and then read. If the result is doubtful, the mixtures are examined microscopically. Whenever the condition of the patient warrants it, this method of selection of donors is advised for greater accuracy, rather than any of the more rapid or microscopic methods of agglutination with small quantities, even though it often carries with it the disadvantage of puncturing the vein in order to obtain sufficient blood. On the other hand, the advantage gained thereby is deemed of great importance; for, while one cannot say that all reactions after transfusion are due to imperfect matching of donor and patient, some reactions may certainly be explained in that way.

REACTION

A frequent objection raised to the sodium citrate method is that marked reactions are obtained after this mode of transfusion.

In our series of 100 transfusions:

(*a*) Forty-eight per cent. were associated with no reaction whatever; no abnormal manifestations either subjectively or objectively were noted.

(*b*) Ten per cent. had practically no reaction to speak of. There was a rise in temperature of 1 or 2 degrees for several hours, but the patients had no abnormal subjective sensations.

(*c*) Forty-two per cent. showed a definite reaction consisting of chilly sensations or chills, and fever; and in the severest types, vomiting. Of the 42 per cent.:

There was a rise of temperature up to 103 to 105 in eight.

There was a rise of temperature up to 102 to 103 in nineteen.

There was a rise of temperature up to 101 to 102 in fifteen.

Many of these temperatures remained elevated only for a number of hours and came down rapidly by a form of crisis; in the others, the fever came down by lysis, and three or four days were required until the normal point was reached.

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Of the 42 per cent. also, five had reactions with quite severe chills; twenty-five had milder but distinct chills, and seven just had chilly sensations or a feeling of coldness but no definite chill.

The chill usually comes on about one half to three quarters of an hour after the transfusion. If the blood flows in too slowly, as warned against above, this chill may come on during the time that the transfusion is being given and naturally is very disagreeable. In the severest type of reaction the chill itself as both observed by myself and as described by a patient, who was an intelligent writer, is more severe in intensity than any other form of chill (malaria, sepsis, etc.). It begins usually in the lower extremities by a feeling of coldness gradually extending up the spine and then over the entire body. Associated with this general, constant coldness, there are at intervals varying from seconds to minutes, exacerbations of this cold feeling turning into an active chill, so that the patient shakes. These exacerbations in instances are extreme, so that the patient is often jolted violently up and down in bed. The lips become blue, the pulse becomes rapid and the skin becomes extremely hypersensitive so that if, for example, the observer touches the side of the patient's face in order to take the temporal pulse, this will be sufficient stimulation to bring on a renewed chill. The patient usually asks for more and more blankets; but no matter how much warmth is applied, it is not sufficient to remove or prevent the occurrence of another chill. These chills last from five minutes to a half hour, and their subsidence is evidenced by the chilly exacerbations first leaving, and then the feeling of coldness disappears also. In contrast to malaria, subsequent perspiration is absent or only slight.

It goes without saying that such a marked reaction as the one just pictured is exceptional. It is described here because I wish to emphasize that in spite of the apparent severity, no harmful results either to the physical condition of the patient or to the value of the transfusion could ever be directly attributed even to such a reaction. All intermediate grades of disturbances occur between this severe syndrome and the absence of chills or chilly sensations. Rise of temperature usually follows the chill and will persist for several hours; or, as was said above, normal temperature may not be reached for three or four days.

It is illogical, as is done by some, to advise another method of transfusion in a particular instance because that particular patient seems too weak to stand a possible severe reaction. I was recently requested to use unmixed blood in a case of sepsis because the man was very weak and the consultant wished to avoid a possible reaction. The Unger method was employed; 500 c.c. of blood were transfused in a very few moments; and the patient had a reaction as severe as, if not severer than, any that I had ever noted with the method of sodium citrate.

Undoubtedly, there is something about the cause of the reactions that we do not understand. At one time I thought that possibly the blood platelets were the cause of the reaction; in other words, that while compatibility of the red blood cells exists, the blood platelets may not be compatible. My experimental work, however, showed that in the human being all blood platelets belonged to the same group and that there were no iso-agglutinins or isohemolysins for blood platelets. While a serum might be rich in agglutinins or lysins for the red blood cells of another individual, the blood platelets of the latter were in no way affected by that serum.

I have made the observation that certain donors regularly give severe reactions and others none at all. While this statement should not be taken without reserve, it is mentioned for corroboration by other authorities. Even if it does prove to be so, it still does not explain the phenomenon.

To summarize the question of reactions, it can be stated that the percentage of reactions after the sodium citrate transfusions is undoubtedly higher and possibly the reactions are severer than with the other methods of transfusion. At no time, however, are they harmful in any way, and therefore they should not influence one to select another method; especially so, when one considers the great technical and manifold other advantages of the citrate method. The advantage of its great simplicity is, to a certain degree, even a slight disadvantage. It is employed by physicians who have little if any surgical experience so that the transfusion usually takes much longer than it should, and the blood is allowed to remain outside the body unnecessarily long; in this way the method may fall into disrepute rather than be one of our greatest helpmates in medical and surgical therapy.

ACCIDENTS

The one accident to be considered in sodium citrate mixtures of blood, aside from the accidents of transfusions in general, is the possibility of the blood's clotting. In earlier transfusions this occurred several times and was due to one or two causes. First, that the sodium citrate and blood were not thoroughly mixed, and secondly, that a 0.2 per cent. mixture of sodium citrate and blood, that is, 50 c.c. of a 2 per cent. solution of sodium citrate to 450 c.c. of blood, was not sufficient for some donors; especially for donors who had already been used for transfusions. Both of these errors can be overcome, the first by stirring the blood and sodium citrate constantly, thoroughly, but gently, and the second by employing a 0.25 per cent mixture, that is, 50 c.c. of a 2.5 or even 3 per cent. solution of sodium citrate to 450 c.c. of blood. To be even more certain that no minute clots slip through, the blood is filtered (through several layers of gauze) into the infusion apparatus.

INDICATIONS FOR WHICH TRANSFUSIONS ARE UNDERTAKEN

The next and most important question to decide is whether blood mixed with sodium citrate is as efficacious as whole or unmixed blood. In order to discuss this, it would be wise to classify the indications for which transfusions are undertaken. These are:

1. To replace blood in hemorrhage of all kinds:
   - (*a*) During the act of bleeding (and at the same time also to help stop the bleeding).
   - (*b*) After the bleeding has stopped and an anemia with its sequelae remain.
2. To stimulate the blood-forming organs in blood diseases:
   - (*a*) Pernicious anemia.
   - (*b*) Leukemia.
3. To alleviate or cure hemorrhagic conditions:
   - (*a*) Hemophilia.
   - (*b*) Hemorrhagic diseases of the new-born.
   - (*c*) Purpuras.
   - (*d*) Complicating secondary hemorrhagic diseases, as jaundice, grave anemia and infections.

4. To act as a stimulant or tonic:
   (*a*) Before operations.
   (*b*) In debilitated conditions.
   (*c*) In acute shock.
5. To neutralize or overcome effects of poisons:
   (*a*) Bacterial infections.
      Bacteremia:
         Endocarditis.
         Infections with pyogenic bacteria; typhoid; etc.
      Toxemia only:
         Diphtheria.
         Peritonitis, etc.
   (*b*) Chemical:
      Diabetic coma.
      Acute gas poisoning.
      Acute yellow atrophy of the liver, etc.

HEMORRHAGE

As for the first class of cases, twenty-eight transfusions were performed to replace blood, immediately or some time after an acute hemorrhage had taken place. These hemorrhages occurred from various causes, such as nasal, pulmonary, vesical and uterine hemorrhages, including postpartum hemorrhages and hemorrhages from myomas, bleedings after tonsillectomy, bleedings from gastric ulcer, gastric cancer, duodenal fistula, hemorrhoids, and bleeding during typhoid fever. There were three deaths in this entire group. One of these patients had very severe uterine hemorrhage associated with pregnancy and a very marked nephritis. One was a young man who was suffering as a result of a severe gastric hemorrhage which set in long after a gastro-enterostomy for ulcer. He ultimately died of inanition. The third was an old man with severe hemorrhage from papilloma of the bladder. He had a moderate nephritis and never recuperated from the shock of the operation.

In all the other transfusions the results were absolutely ideal. Improvement started almost immediately. In several instances the results were short of miraculous. Patients in marked collapse, almost exsanguinated from the loss of blood, would speedily recover and recover sufficiently well to withstand a severe operation, such as a panhysterectomy, with comparatively little shock. In such cases another transfusion was given immediately after the operation, or part of the original blood was kept for this purpose. Naturally with no other form of transfusion could this have been done. In all cases in which transfusions were given not only to replace the lost blood but also to help in stopping the bleeding, this end too was attained. In the cases of pulmonary hemorrhage, of gastric or duodenal ulcer, hemorrhage after tonsillectomy or nasal operation, the transfusions undoubtedly helped to check the hemorrhage. This was particularly so in those with repeated or prolonged bleeding. In spite of some hesitation about transfusing immediately after an active hemorrhage on account of the danger from the rise of the blood pressure, all the patients received from 800 to 900 c.c. of blood without any harmful effects whatsoever. It is wise, however, to keep this possible danger in mind. In general, I am inclined to favor transfusions of large amounts of blood, naturally taking into consideration the size of the patient, his physical condition and any other possible contraindications.

Thus, it is noted that the sodium citrate transfusion is perfectly effective for the class of cases in which hemorrhage or its results has to be dealt with. Especially for the acute hemorrhage occurring in such great numbers at present on the battlefields, this form of transfusion is the only one to be considered. It can be performed very readily in the field, where large quantities of blood from various groups can be held in readiness. Rapid transfusion tests can be performed, or if the condition of the patient is too serious, these may be omitted entirely and blood from a Group II donor given. It will undoubtedly save many a comrade.

PERNICIOUS ANEMIA

The introduction of direct transfusion as a curative measure in pernicious anemia encouraged the medical profession only for a comparatively short time. I know of no case of true pernicious anemia in which there has been permanent cure by transfusion alone, no matter what method was employed. Recently, our hopes for conquering this disease have again been stimulated by the introduction of splenectomy as a therapeutic measure. It can already be said that the removal of the spleen can be offered only as a possible means of cure, and not as a certain means. In the early cures there have been relapses, and while I do not wish to express undue pessimism, it must be said that splenectomy with or without transfusion, either before or after operation or both, has not yet solved the problem of pernicious anemia.

The term "pernicius anemia" must be confined to that very severe grade of primary progressive anemia so classically described by Addison, in which no apparent causation is evident. It should not apply to these cases of pseudo pernicious anemia simulating the primary progressive but actually secondary to some focal infection discovered sooner or later. On the other hand, it is possible that all cases of true primary progressive pernicious anemia are not primary, but secondary to some such focal infection in most instances not discovered; such assumption has still to be definitely proved. The most one can expect of transfusion in pernicious anemia is, first, to overcome the symptoms of the severe anemia, and, secondly, to institute a remission and in this way prolong the patient's life, possibly for many years. The question at present under investigation is whether blood mixed with sodium citrate can accomplish this as well as whole or unmixed blood.

In this report thirty-three transfusions were performed on fifteen patients. Five patients showed little or no effect; of these, three were practically moribund at the time of transfusion and died within a few hours or days. The other two showed improvement for several days, and then, in spite of the temporary increase in hemoglobin and red blood cells, the anemic symptoms rapidly reappeared and the patients died. It is certain that no other method of transfusion would have succeeded any better, for the tissue cells were not in a condition sufficiently alive to respond to the stimulus. Of the other ten patients, all showed a progressive improvement following one or more transfusions. While it is known that patients with pernicious anemia have remissions even without transfusion, it seemed that remissions were initiated more promptly with the aid of transfusions. These remissions lasted from four weeks to twelve months, and in one case two years. All the cases of this series were of a severe type of pernicious anemia and came under treatment late during the course of the disease. It is certain that had not transfusions been done, death

would have occurred within a short period of time. The life of these patients was undoubtedly prolonged.

As for the immediate effect of the transfusion on the symptoms associated with the anemia, no method of transfusion could surpass the results of the citrated blood. The transformation in the patient is short of miraculous. I know of no condition in medicine in which the rapid change is so marked. A very annoying symptom often complained of most bitterly by patients is the peculiar "surging" noises in the head, keeping the patient from resting and possibly due to the diminished viscosity of the blood. With one of my patients this was the first sign that the anemia was increasing and this was always corroborated by a much lowered hemoglobin. This manifested itself on four different occasions, and with each of the four transfusions which followed, after about 600 c.c. of blood had run into the veins, these noises regularly disappeared.

Improvement in the other symptoms becomes evident after several days; in some cases sooner. The hemoglobin and red blood cells always increase; the general strength of the patients improves; so much so, that they are able to get out of bed and walk without becoming faint or breathless; the frequent disgust for food lets off; they even get an appetite, and the digestive disturbances disappear. The rapid pulse becomes slower; and in two instances in which loud systolic murmurs were present over the entire precordium prior to transfusion, the murmurs almost entirely disappeared after the transfusion, only to reappear again, however, when the severe anemia returned. In three instances in which the patients had mild temperatures for weeks previous to the transfusion, these subsided within forty-eight hours after the transfusion. This should not be taken as characteristic of pernicious anemia, as the same observation was made in transfusion for simple chronic secondary anemia after hemorrhage (anemic fever).

How long does this state of improvement after the transfusion last? Our only answer can be, "Nobody knows; we must wait and see." As was said before under the discussion of remissions, the improved state may last only for a week or as long as several years. One transfusion may not suffice. It may require two, three, four or even many more to bring about a lasting result. Naturally, it depends to a great degree on the type of case. There is a form of pernicious anemia which is acute, virulent and rapidly progressing, in which the condition is very serious and the patient tends to go down the hill quickly, no matter what is done. The physician bears the responsibility here in that the transfusion should be undertaken early and not until the general condition of the patient or the hemoglobin is so low that the nutrition and life of the tissue cells is undermined. It must be remembered that anemia itself leads to disturbed functions or even degeneration. It is surprising how quickly certain patients will lose ground.[1] On the other hand, it is just as surprising to see how comparatively well patients will exist with a hemoglobin as low as 12 per cent. and red blood cells as low as 800,000.

If a given transfusion has not brought about a remission or the patient has not improved quickly, another transfusion should be undertaken without delay, possibly from a different donor. Then, too, if a patient has improved and a remission has set in, transfusion should be repeated just the same as soon as the very first evidence appears that the patient is not holding his own either in his subjective general feeling or by examination of the blood. There is no limit to the number of transfusions a patient may receive, and I have in several instances given 1,000 c.c. of blood twice in three days. In some cases in which repeated transfusions are undertaken, it is surprising to note that the patients will usually do well for the same definite period of time after each transfusion, for example, one month, and then the symptoms will recur. Furthermore, the recurrence will usually be initiated in the same patient by the same train of symptoms; for example, in one patient it was always the surging noise in the head; in another it was the complete loss of appetite; in another it was the complete exhaustion, etc.

In this connection, we all know that the patients with pernicious anemia have an achylia gastrica. In one case I was able to do a test meal again after the transfusion, when the patient felt very well; but no free hydrochloric acid or pepsin was found. Even in a case in which splenectomy was performed and improvement had set in, a pre-existing achylia remained. The relationship between lack of gastric secretion and progressive anemia is a problem often discussed; but no conclusion has been reached as to which is primary and which secondary. In another case, the patient was seen with a blood picture and clinical appearance of pernicious anemia; but hydrochloric acid was still present. Later on the free hydrochloric acid disappeared. This would speak for the achylia as a secondary manifestation; rarely, however, do we meet the cases early enough to determine this question.

With regard to the quantity of blood, here too I am in favor of employing large amounts, from 900 to 1,000 c.c. of blood—the more the better. While it is true that in pernicious anemia the new blood is supposed to stimulate the blood-forming organs, we have noted cases in which there will be evidence of the rapid manufacture of red blood cells without an improvement in the symptoms. In such cases the well being of the patient may depend on how long the fresh supply of normal blood is kept without being destroyed; and naturally the more blood he receives, the longer it may last him. A smaller quantity of blood may suffice to start a remission or stimulate the blood-forming organs in some patients, but one never knows before the transfusion what type of case one is dealing with; and therefore, we are safest with a large transfusion. Naturally one must take into consideration the usual factors of size, age and condition of the patient.

In two instances, compatible blood was used from two patients suffering from chronic nephritis; the blood showed high figures for the nitrogenous constituents. Not only were no harmful effects noted, but the usual good result was obtained. It is of importance to know that such blood may be used in an emergency, especially for cases of acute hemorrhage.

During the entire treatment of the patients with pernicious anemia, the physician should constantly keep in mind that he must exhaust every means to detect any possible focal infection and overcome it. Dr. Barker places an enormous amount of importance on the teeth as the source of this infection. In this series, no such direct association could be attributed. My experience cannot quite corroborate the recent ten-

1. In one patient the hemoglobin and red blood cells dropped to one third within two weeks.

dencies of making teeth infections the clearing house for man's ailments. The pendulum is swinging too high in this direction. On the other hand, they should always be eliminated as the cause of disturbances.

In summary, it can be said without hesitation that the results obtained in pernicious anemia by sodium citrate transfusions are absolutely as favorable as those obtained by unmixed blood. In fact, the foregoing series compares almost identically with a similar series transfused with whole blood (Ottenberg and Libman). Furthermore, isolated instances can be cited in which sodium citrate transfusion seemed even more efficacious. Bernheim reports such a case. I, too, can add an example:

A woman, aged 50, received a direct transfusion of 900 c.c. of blood. An incision of the skin was necessary. Three weeks after, the severe anemic symptoms recurred, but the patient refused transfusion because of the difficulties associated with the operation and the lack of lasting improvement. A sodium citrate transfusion of 1,000 c.c. of blood was given in the guise of a medicated saline infusion; no incision was necessary. The improvement was so marked that the patient very willingly took another transfusion three weeks later. Two years have elapsed since then; the woman is up and about attending to her housework and apparently perfectly well.

It is too bad such favorable effects do not come more often.

LEUKEMIA

As for the therapeutic value of transfusion in cases of leukemia, the standard that is set by authorities who employed the unmixed blood is not very difficult to equal. Now and then a case with apparent distinct benefit for the time being is noted, but such improvement is short lived. In the present series, there were six transfusions in four cases of lymphatic leukemia, and one transfusion in a case of myelogenous leukemia.

One patient with acute lymphatic leukemia had severe bleeding from the nose and gums so that the loss of blood was becoming alarming. In addition, the patient had a high temperature. After the first transfusion of 600 c.c. of blood, the bleeding ceased, the fever came down, the hemoglobin rose from 28 to 60 per cent., and the patient felt much improved. This happy state of affairs lasted only for several weeks, when a renewed transfusion did not bring about a similar successful response. The high fever returned and the patient died.

A child, aged 3½ years, with chronic lymphatic leukemia showed marked improvement after a transfusion of 300 c.c. of blood. The change in the blood picture was very striking. The hemoglobin rose from 10 to 34 per cent.; the red cells increased from 1 to 2 million; the white blood cells decreased by 5,000 or more every day, so that three days after transfusion the leukocytes had diminished from 33,800 to 13,200; and whereas before the transfusion there were 100 per cent. lymphocytes, three days after the transfusion there were 28 per cent. polymorphonuclears. The general condition improved in the same striking way and kept up one week. Then another transfusion was given, but this time twice the quantity (600 c.c.). This may have been too much, as two days afterward there was dilatation of the heart and a slight edema of the lungs which ended fatally in five days. The blood picture, however, was remarkable: hemoglobin, 75 per cent.; red blood cells, 3,200,000; white blood cells, 7,200, and polymorphonuclears, 23 per cent.

I have mentioned these changes in the blood picture not because they are unusual, as they have been noted by other writers on transfusion. I merely wished to point out that sodium citrate transfusions accomplish this just as well as direct blood transfusions. No definite explanation can be given for the temporary halt in the disease or for the diminution in the white blood cells.

Another case of chronic lymphatic leukemia with severe bleeding from the gums and extensive gangrene of the roof of the mouth had no effect from a transfusion of 900 c.c. of blood. On the other hand, a marked benefit both clinically and hematologically was observed in another patient with chronic lymphatic leukemia of several years' standing. The diminution in the white blood count was not so evident (from 78,000 to 46,000), but the improvement in the general condition was much more striking.

Such immediate beneficial change was observed also in a case of myelogenous leukemia. After transfusion the fever dropped, the hemoglobin rose from 30 to 75 per cent., and the leukocytes diminished from 25,000 to 6,900. The patient's general condition was very much better, but one week after, he developed edema of the larynx and died.

In summarizing, blood transfusion is used in leukemia not with any idea of effecting a cure, but rather in the hope that the condition may be influenced to take on a more chronic form, with a resultant prolongation of life, or for the purpose of counteracting any acute complication or symptom associated with this dreaded disease. All this is readily accomplished by sodium citrate transfusion just as efficiently as by unmixed blood.

HEMORRHAGIC CONDITIONS

Under the heading of hemorrhagic conditions are to be found a number of different morbid conditions, having in common the one element of bleeding. Such hemorrhagic conditions include: (*a*) hemophilia; (*b*) hemorrhagic diseases of the new-born; (*c*) purpuras, and (*d*) secondary hemorrhagic diseases complicating such conditions as prolonged jaundice, grave anemias, leukemia and severe infections.

Some forms of bleeding are probably the result of infection, while others present developmental deficiencies of a serious order. Of the latter type, the most striking example is hemophilia, in which Howell has clearly demonstrated that the fault is to be found in a lack of prothrombin. It has been shown that transfusion of fresh blood favorably influences the cessation of the bleeding. The question that concerns us at present is whether blood mixed with sodium citrate can accomplish this just as well as whole blood.

The first patient, a boy, aged 14 years, was seen by me two days after the extraction of a molar tooth. Oozing had continued since the operation, and at the time of consultation the pulse was weak and rapid (136), the respirations increased, and the hemoglobin down to 56 per cent. All attempts to stop the bleeding were futile. The coagulation time of the blood was forty-eight minutes. Nine hundred c.c. of blood were transfused, and in six hours the bleeding had entirely ceased.

The second patient, a baby 2 days old, passed three large bloody stools. Fifty c.c. of the mother's citrated blood were given intravenously and the bleeding ceased.

The sodium citrate method is especially well adapted for this type of case; these babies are often brought to the hospital, and it is very practical to send an intern to the mother's home, where the blood is collected in citrate solution and thus transported to the hospital where it is given. Preliminary transfusion tests are unnecessary if the mother's blood is used.

Three patients with chronic jaundice from obstruction of the bile duct received transfusions of 900 c.c. of blood from eight to twenty-four hours previous to operation. The tendency to bleeding in this type of case is well known to surgeons. For several years we have been accustomed at the hospital to prepare these patients by administering to them from 200 to 300 c.c. of human serum subcutaneously during the forty-eight hours previous to operation. Either 50 c.c. three times a day or 75 c.c. twice a day was the usual routine. The results from this method have been very satisfactory. In the three cases in which sodium citrate transfusions were performed instead, the results as far as bleeding is concerned, were just as satisfactory; and there were several advantages: first, the entire technic was less complicated and, second, the patients had the additional advantage of a fresh supply of normal blood.

One patient with chronic jaundice from gall duct disease was operated on without preliminary transfusion or serum treatment. An oozing of blood from the wound started soon after the operation and continued for four days, when 800 c.c. of citrated blood were transfused. The bleeding at once began to diminish, and in three days it had ceased entirely.

Dangerous hemorrhages associated with two cases of leukemia (one from the nose and one from the gums) and two cases of pernicious anemia (one from the uterus and one from the mouth) ceased immediately after transfusion.

Thus, while the number of cases with hemorrhagic tendencies in this series is not very numerous, still the almost perfect results in all is sufficient to demonstrate clearly that the presence of sodium citrate mixed with the fresh blood does not interfere with the action of the latter.

AS A SUPPORTIVE MEASURE

Transfusions can be employed to a very great advantage as a tonic in debilitating conditions. Medicinal aid, such as iron and arsenic, prove valuable adjuvants, but only after transfusion, when the vitality of the tissue cells has improved. In patients with very little recuperative power, a long drawn out convalescence can be definitely hastened by transfusion; patients in a run down state about to undergo a severe operation can often be saved from fatal termination by preliminary transfusion; patients afflicted with an incurable disease and suffering from disturbances associated therewith can be spared their last days of misery and acquire comparative comfort by means of transfusions. Such and similar conditions were the indications in fifteen patients of our series.

Each of seven patients was given a transfusion preliminary to operation; two women very much weakened by long continued uterine hemorrhages withstood complete hysterectomies successfully; it is doubtful whether this would have been possible without transfusion.

Two patients with anemia due to repeated bleedings from hemorrhoids for years received 750 c.c. of blood previous to operation.

One patient with Banti's disease received a transfusion preliminary to splenectomy. In this particular instance I am almost certain that the patient would not have survived the operation. The anemia was of a very severe grade (32 per cent. hemoglobin); there was an associated endocarditis, and in addition there was a tendency to nasal hemorrhages and recurrent rises of temperature. In spite of these complications the operation and convalescence passed uneventfully.

A patient with carcinoma of the intestine withstood a difficult resection of several feet of intestine without any disturbance.

An extremely undernourished girl with sarcoma of the hip (afterward found to have general sarcomatosis), who had been in bed with high temperature for weeks, withstood without trouble a difficult hip resection.

Naturally, one cannot say absolutely what the results would have been in any of these instances had no transfusion been given; but one can be reasonably sure that some of the patients would not have recovered from the operation, and it is certain that their condition after the operation would have been more stormy. I am convinced that nothing more could have been accomplished by the transfusions of whole blood.

As a purely palliative tonic measure, transfusion was employed in eight instances; one case with inoperable carcinoma of the rectum; one case with general carcinomatosis of gastric origin and marked inanition; one case of biliary fistula; two cases of noneffective gastro-enterostomies; two cases of marked inanition from severe diarrhea, and one case of extreme malnutrition associated with a long drawn out sepsis following a pelvic abscess. None of these patients recovered; but nothing else could be expected because the underlying condition was one that could not be remedied. On the other hand, all the patients showed definite clinical improvement. As far as the sodium citrate question is concerned, one can with almost absolute assurance state that transfusions of whole blood instead of citrated blood would have offered no more favorable statistics. No type of transfusion can cure organic pathologic changes.

THE NEUTRALIZATION OF POISONS

The possibility that blood from a healthy donor may be employed to overcome the effects of various types of poisons was one of the earliest great expectations from transfusion.

Poisons may be thus subdivided:

(*a*) Bacterial infections with:
  Bacteremia:
    Endocarditis, infections with pyogenic organisms, typhoid, etc.
  Toxemia only:
    Diphtheria, etc.
    Peritonitis, etc.
(*b*) Chemical:
  Diabetic coma.
  Acute gas poisoning.
  Acute yellow atrophy of liver, etc.

BACTERIAL POISONS

As soon as the principles of immunity were more closely investigated, it was apparent that in bacterial infections, transfusion of blood was mainly of use for its general strengthening effect rather than for its specific bactericidal or antitoxic effect, because the normal blood usually has less specific antibodies than the infected individual. For this reason there has been advised the artificial immunization of donors against the specific infecting agent previous to transfusion. Not only do such immune donors have a great number of specific antibodies in the plasma (humoral immunity), but it is possible that on the basis of the cellular immunity, red blood cells share the powers of

immunity with the other tissue cells; and thus, by transfusion, we are transferring immune cells which may continue to functionate.

Five patients suffering from subacute infective endocarditis were transfused. In one patient who had only eight bacterial colonies per cubic centimeter of blood before the transfusion, the blood culture became sterile and remained so for one week after the transfusion. A repeated transfusion from the same donor later on did not, however, bring about the same hoped for result; so that the transfusion cannot be definitely credited with the bacterial free state of the blood. One patient received blood twice from a donor previously immunized with the *Streptococcus viridans*, but no special effect on the number of colonies after transfusion was noted.

None of the patients ultimately recovered; but the transfusions had a very marked beneficial effect on all of them and undoubtedly prolonged life. Before the transfusion there was frequently no appetite and complete lack of strength, causing severe exhaustion at the least exertion. The change in the subjective feeling of the patients after transfusion was very pronounced. As one of my patients put it, it renewed his lease of life.

Infective endocarditis still leans toward the incurable class of diseases, so that transfusions from an immune donor should be undertaken as early as possible and not delayed until the poisons have affected the tissue cells too severely to react.

As for infections with pyogenic bacteria, there was a case of staphylococcus bacteremia associated with osteomyelitis. The patient was a boy, aged 12, with a bad infection of the tibia that resulted also in a severe grade of anemia (39 per cent. hemoglobin). Resection of the lower end of the tibia did not bring about a cure. Three weeks after, a transfusion (600 c.c.) was undertaken with a splendid result. Improvement started immediately, and in six weeks the patient went home, having gained 16 pounds in weight, with the hemoglobin up to 65 per cent. and the leg practically healed, almost ready to walk.

Not so brilliant, however, was the outcome in two cases of streptococcus (hemolytic) sepsis associated with intra-uterine infection. Repeated transfusions in both patients gave only a slight temporary improvement; the infections progressed rapidly to a fatal issue.

Such also was the result in a case of peritonitis following an appendectomy for a virulent gangrenous infection. The blood culture was sterile; but the general toxicity was extreme, and the patient died.

A child, aged 5 years, with diphtheria, who had received a large dose of antitoxin but in spite of which showed evidences of a severe toxemia (coma, albuminuria and bradycardia), was bled (300 c.c.) and then transfused with 300 c.c. of citrated blood. No change in the condition was noted, and the patient died.

Thus it is realized that much is still desired of transfusion as a therapeutic means for bacterial infections. This pertains not only to citrated blood, but also to whole unmixed blood. The use of immunized donors holds out greater hope, but statistics are still too few to permit a conclusive opinion.

As for chemical poisons, our experience is limited. A diabetic patient who had been operated on for gangrene of the foot suddenly developed severe diabetic coma. The ordinary therapeutic measures produced no effect. Venesection with removal of 500 c.c. of blood was followed by transfusion. The improvement was distinct; the patient revived from her coma but relapsed again in twenty-four hours. Venesection and transfusion were repeated, and while a noticeable improvement again occurred, the patient did not recover.

Similarly unsuccessful was the result in a woman suffering from toxemia following labor. Favorable results have been reported for the use of whole blood transfusions in gas poisoning. The present series does not include such an example, but there is no doubt that the action of citrated blood will be just as efficient as whole blood.

COMMENT AND SUMMARY

When transfusion was first introduced, it was grasped at as a cure for almost every disease. Accordingly, our disappointment was the greater when the hoped for did not materialize. At the present day, however, we have limited the indications and realize the shortcomings.

Absolute cure from infusion of blood can be ascribed to only comparatively few types of disturbances. It undoubtedly is a life saver in patients suffering from hemorrhage of whatever origin. This is being best demonstrated during this world struggle. In the numerous other conditions for which transfusion is given or advised, it is the most efficient means for prolonging patients' lives in comfort or for aiding them to recover much more quickly than they otherwise would. All these indications are fulfilled by the sodium citrate method of transfusion just as successfully as by the other methods of whole blood transfusion, and much more easily. In fact, it is the only means that is feasible under some circumstances, for example, the present day indications on the battlefield. Here large quantities of blood of each group can be held in readiness for any emergency and, if necessary, can be given in the field. The citrated blood will keep well for days or even weeks.

It is true that uncomfortable reactions follow infusions of citrated blood more often than unmixed blood, but in no way have these been harmful to the patient or interfered with the fresh blood's favorable effect. The cause of these reactions has not been definitely established. Several factors will probably have to be taken into consideration. I believe that some change occurs in one of the blood constituents, possibly the platelets or leukocytes. This results in the chill and the subsequent fever which resembles so closely the symptoms following intravenous administration of vaccines or proteins. In any event, all attempts should be and are being made to eliminate this reaction.

CONCLUSION

One hundred transfusions by the sodium citrate method have been performed for various disturbances, and the favorable results compare almost absolutely with those obtained by other authors using unmixed blood. It should, therefore, except only in special instances, be adopted as the routine method, since both the clinical and the laboratory findings support this view.

Terminal Disinfection.—Cleanliness, fresh air, proper care of the sick, correction of ill-considered personal habits are more to be commended than the potencies of various germicides, and such are more in accord with the tenets of preventive medicine.—*Weekly Bulletin*, Department of Health, New York City.

ORIGIN OF THE SO-CALLED AUTO-INTOXICATION SYMPTOMS*

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The cave man of the glacial period and the savage of today would doubtless agree that practically all disease is due to the malevolence of evil spirits. That idea constituted the first system of medicine. The next one appeared with the dawn of civilization, when men awoke to the possibility that some diseases might arise from spontaneous derangements of the bodily functions, particularly those concerned in excretion. They reasoned that if feces are foul, then the body must be in the best condition when freest from such material. This idea, which is based on what appears to be an obvious truism, has always been an attractive one, particularly to the lay mind. The ancient Egyptians purged themselves at certain times in the moon's cycle, just as many people now take calomel in the spring. For thousands of years, physicians have been in the habit of purging their patients when they have not known what else to do. We see, then, that the present day dread of stasis and "autointoxication" is nothing new. In the eighteenth century, the high priest of the cult was Johann Kämpf, who believed that all disease was due to impacted feces. Under his teaching the use of large medicated enemas became immensely popular, and the apothecaries fattened off the hypochondriacs then, just as the "internal bath" specialists do today.

The medical historian feels, therefore, that the ready acceptance of the views of Bouchard, Metchnikoff and Lane in the twentieth century must be due in large part to the fact that they fit into this great background of inherited belief. Still another factor in the rapid dissemination of these ideas has undoubtedly been the advertising campaign of those who would sell liquid petrolatum, agar, indigestible foods, sour milk, and patented syringes. One cannot blame the layman for his prompt conversion to what appears to him to be a sensible enough doctrine, but it does seem as if the scientific physician should look into the matter more carefully before he starts inoculating his patients with fear.

THE DIAGNOSIS OF "AUTOINTOXICATION"

I wish in this paper first to protest against the thoughtless way in which many of us are constantly making this diagnosis of "autointoxication." I do not deny that there may be such cases, but my experience in looking over the people who have been classified as such by other physicians makes me feel that the real article must be rare.[1] Time and again I have been put to the embarrassment of having to point out to some brother physician that his beautiful case of "autointoxication" was really an aortic regurgitation, a chronic nephritis, a myxedema, a high blood pressure, tuberculosis or some other well known disease. In the most recent of such cases, there was a hemoglobin of 45 per cent., a systolic blood pressure of 200 mm. of mercury and a large fibroid tumor of the uterus. The patient's physician was surprised to find that the constipation which he thought was primary and responsible for all her symptoms was really one of the least of her troubles. It undoubtedly is true, as Taylor[2] says, that fashions in the "cloak for ignorance" change just as they do for other wearing apparel. When confronted by puzzling cases, we probably will always have a tendency to fall back on stock diagnoses, such as "too much uric acid," "typhoid-malaria" or "disturbances in the autonomic nervous system." Just at present the popular fancy seems to turn to "autointoxication" and "focal infections."

There are a considerable number of men, however, who do examine their patients and who still believe, after finding nephritis, hypertension, arteriosclerosis or gastric ulcer, that these diseases are due, directly or indirectly, to intestinal stasis. Some persist in this view even when it is shown that the patient has no stasis. Such men, it seems to me, are hopeless and beyond the reach of argument. The others who have demonstrated abnormal stasis in their patients may be in the right; I respect their position, but I believe it is weak. When men like Alonzo Taylor[3] and Adami[4] with their great technical knowledge tell us that there is no real evidence to support the theory of intestinal toxemia, and that the pathologic findings can be explained more easily in other ways, it seems to me that we should be slow to accept the enthusiastic claims of rough and ready surgeons who have short-circuited a few colons.

UNPROVED ASSUMPTIONS

It is not sufficient to show that toxic substances can be formed during the bacterial destruction of nitrogenous matter. It must be shown that these toxins are formed in the intestine; that they can pass through the mucous membrane; that they can escape destruction in the liver; that they can reach the general circulation in amounts sufficient to produce symptoms, and that the symptoms produced by the repeated injection of small doses of these substances into animals are similar to those observed in constipated men. Unfortunately a review of the literature on these suspected toxins shows that little has been done with most of them beyond proving that they may be formed in vitro. Others, such as albumoses and peptones, are known to be present in the intestine; some of them are highly toxic when injected into a vein, but they are harmless when taken by mouth. The same thing may be said about many bacterial toxins. Filtered cultures of virulent cholera vibrios that will produce severe gastroenteritis and death when absorbed from the peritoneal cavity will have no effect when injected into the bowel.[5] We know also that antitoxins, secretin, epinephrin and other organic substances cannot be administered successfully by mouth. It is even more remarkable that such simple molecules as magnesium sulphate and lactose are practically unable to pass through the intestinal mucosa.[6] Many such examples could be quoted,[7] all showing how certain we must be on this point of absorption before we can ascribe the symptoms of "autointoxication" to any one substance.

Those who are impressed by the enormous numbers of bacteria found in the feces should remember that

* From the George Williams Hooper Foundation for Medical Research, University of California Medical School.

1. Clendenning (Interstate M. J. **22**:1197, 1915) says, "I only know that the more carefully I examine any group of patients, the more completely do such things as chronic intestinal stasis melt out of my records."

2. Taylor: Digestion and Metabolism, Philadelphia, 1912, p. 455.
3. Taylor: Modern Medicine, Philadelphia **2**:503, 1914.
4. Adami: Brit. M. J. **1**:177, 1914.
5. Denys and Sluyts: La cellule **10**:67, 1893. Nesbitt: J. Exper. Med. **4**:6, 1899.
6. Cohnheim: Nagel's Handbuch der Physiologie, Braunschweig **2**:615, 1907.
7. Woolley: Jour. Lab. and Clin. Med. **1**:45, 1915.

nearly all of them are dead. Distaso[8] and others have pointed out that they cannot multiply in constipated feces on account of the dryness and the lack of nitrogenous food. Only in the cecum can a little peptone be found. It seems clear also that there are antibacterial forces at work in the bowel, and we must be very careful in drawing conclusions from the results of experiments in vitro. It must be remembered, moreover, that the great number of intestinal bacteria produce no soluble toxins. Even those that do produce toxins may do little harm because, as we have seen above, these substances are often unable to pass unchanged through the mucosa.

According to Mutch,[9] who has written one of the chapters in Lane's book and who is often quoted by those who believe in "autointoxication," the luxurious flora of the colon is a protective and useful mechanism in that it insures the rapid breaking down of amino-acids or other nitrogenous substances "into relatively innocuous bodies such as phenol, ammonia, water, carbon dioxid and hydrogen." To this list he adds later indolacetic acid, indoxyl and indol.[10] Mutch realizes also that in the colon there is even less chance for absorption of toxic substances than there is in the small bowel. He admits that there is no absorption demonstrable even when short circuiting changes the colon into a blind sac full of stagnating feces. We know from researches on nutrient enemas that practically nothing can be utilized besides water, salt and a little sugar.[11] We know also that the feces begin to harden in the ascending colon, and thereafter they undergo practically no churning movements. They tend to go forward through the remainder of the bowel like cars on a track. This fact is brought out not only by the roentgen ray, but particularly by the study of fecal masses, in which one can often see sharp lines of cleavage between residues from two different meals. Very little absorption can be expected under such circumstances. To get absorption the feces would have to be liquid and churned actively to and fro as are the contents in the jejunum.

THE EFFECTS OF STASIS

Many of the writers on autointoxication have recognized this difficulty and have struggled to evade it. Bouchard[12] felt that colonic stasis could do little harm, and he even went so far as to say that with the dying out of the bacteria in the hard, dry feces, "constipation ought to be regarded as a protection against autointoxication." He thought the poisoning was to be observed "in chronic diarrhea, in cancer of the stomach or intestine, in chronic dyspepsia and above all, in dilatation of the stomach. Whenever he could get splash sounds in a woman's stomach he ascribed all the symptoms or pathologic findings she had to "autointoxication." Since then, of course, the roentgen ray has shown us that the stomach rarely retains its contents long enough for any fermentation or absorption of toxins.

Combe[13] also admits that colonic stasis probably can have little effect on health, and that the stagnation and absorption must be looked for elsewhere in the tract. The roentgen ray has since shown us in thousands of constipated people that the colon is practically the only place in which stagnation does take place. In some cases there is a little delay of the contents in the last few inches of ileum, and in rare instances there is a little stagnation in the duodenum. I am willing to believe with Mutch and Lane that stagnation in the small intestine might give rise to the absorption of substances which ordinarily would be broken down in the colon or voided by the rectum. My experience makes me feel, however, that in nine out of ten cases the stagnation is not of sufficient duration to allow of much bacterial action. Moreover, any symptoms complained of by these people may be due to the chronic appendicitis which is so often the cause of the iliac stasis. I believe the duodenal stasis described by Jordan[14] is produced artificially by his giving the barium shortly after a meal. I agree with other observers that duodenal stasis is rarely seen, and that it probably has little to do with autointoxication. Mutch takes refuge in the terminal ileum as about the only place in which toxic substances can be formed and absorbed. There alone do we find a few "selected bacteria not too numerous and not too versatile in their chemical potentialities." He found, in a few of the short pieces of ileum removed at operations by Lane, a bacillus which forms from histidin a substance, beta-iminazolylethylamin, which markedly lowers the blood pressure when injected into animals. From observations in fourteen cases he felt he had "proved definitely" that this substance is responsible for the low pressure seen in some cases of autointoxication. He claims that an ileocolostomy frees the urine from toxic substances absorbed from the terminal ileum, although we know now that that operation usually makes the ileac stasis much worse than before.

There are other things in Mutch's articles that make one uneasy about accepting his conclusions, and now further doubt has been cast by the work of Mellanby,[15] who found that he could obtain beta-iminazo only with pure cultures of certain bacteria. Other organisms, when present, broke it down as fast as it was formed. It was not absorbed from the colon, but was rapidly destroyed there by relays of bacteria. He says the substance is such a powerful stimulant to smooth muscle that it must produce diarrhea and vomiting as soon as minute amounts are formed. He cannot believe that it has anything to do with constipation; nothing short of a mechanical obstruction would keep the bowel from voiding it immediately. If beta-iminazo has any clinical significance he thinks it is in the vomiting and diarrhea of children!

NEED FOR SCRUTINIZING RESEARCH REPORTS

I have gone into the subject thus at length to show how carefully we must study the reports of research workers before we quote them in support of a favorite theory. Some of my friends who believe that autointoxication produces high blood pressure say, "Hasn't some one found a pressor substance in the intestine?" I believe not. Dale and Dixon have suggested that three amins clósely related structurally to

8. Distaso: Centralbl. f. Bakt., orig. **59**:48, 1911; **75**:507, 1915.
9. Mutch: Brit. J. Surg. **2**:608, 1915.
10. Herter (New York M. J. **68**:89, 116, 1898) showed that indol is comparatively harmless even when given to men in doses enormously greater than those ever encountered in health or disease.
11. Bywaters and Short: Arch. f. exper. Path. u. Pharmakol. **71**:426, 1913. Edsall and Miller: Tr. Coll. Physic., Philadelphia **24**:225, 1902. Wynter: Brit. M. J. **2**:1720, 1902. Adler: Am. J. M. Sc. **150**:565, 1915.
12. Bouchard: Lectures on Auto-Intoxication in Disease, or Self Poisoning of the Individual, translated by Oliver, Philadelphia, 1894, p. 145.
13. Combe: Intestinal Autointoxication, London, 1908, p. 111.
14. Jordan: Arch. Roentg. Ray **18**:231, 1913. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, J. A. M. A. **65**:390 (July 31) 1915, Note 41.
15. Mellanby: Quart. J. Med. **9**:164, 1916.

epinephrin may be formed from protein during intestinal putrefaction. One of these substances, parahydroxyphenylethylamin, has much to do with the pharmacologic actions of ergot. It seems to me unlikely that these substances have anything to do with hypertension as we see it in practice. If they were responsible for the increased pressure we would expect it to drop to normal after purgation or during periods of normal intestinal activity. Such, I feel certain, is not the case. Moreover, Dale and Dixon found that these drugs when given repeatedly soon lose their effect, whereas we know that hypertension tends to become progressively worse. Mutch has suggested indolethylamin as the cause of hypertension, but Laidlaw and Ewins have found that it is destroyed in the liver before it can do any damage.[16]

Friends have pointed also to the work of Whipple on the proteose intoxication from closed loops of intestine. They have said, "How about that? There you have a toxin formed during stasis." If they had read the articles referred to they would have found that Whipple's work does not favor their theory. The toxin is not formed in the colon at all and very slowly in the lower ileum. Dogs with closed loops of ileum or colon may live long in perfect health. Moreover, the substance is not absorbed from the lumen of the intestine, but from the mucosa where it is formed.

The cure for all this is more reading, and particularly reading of the original articles. Many who now look up to Bouchard, Combe, Metchnikoff and Lane as great masters to be revered would be cured of their belief in "autotoxemia" if they would only read the hodgepodge books these men have written on the subject. Whenever I look into them I am reminded of the boy who had to write a composition on the horse. He began by remarking that the horse looks very much like the cow, and continued with a long description of the latter animal. Bouchard[12] rambles on about uremia, typhoid, diabetic coma, crude experiments to show the toxicity of urine, etc. Combe's carelessly written and pseudoscientific work[13] reveals a children's specialist who has become so used to ascribing the many symptoms of his little patients to the bacterial decomposition of food in their intestines that he cannot keep from looking at adults in the same way. We must remember that, as compared with the infant's digestive tract, the adult's is very much less sensitive in every way, and the mucosa apparently much less permeable to toxins and bacteria. Moreover, the acute upsets of the infant with diarrhea, vomiting, fever and rapid wasting are very different from the chronic constipation, headache and nervousness of the adult. Many of Combe's ideas as to autointoxication in infants may be correct, but he has no right to talk about babies in one breath and adults in the next, as if there were no difference between them. One must object, moreover, to his reliance on the old worthless experiments in which urine and feces from the supposed victims of "autointoxication" were injected into the veins of rabbits.

We know now that Metchnikoff[17] was wrong about his lactic acid bacilli, and that they do not even survive in the colon; much less do they replace other forms.[18] It seems likely from recent work that the earlier writers, with their imperfect cultural methods, fed one bacterium by mouth and recovered another closely related saprophyte from the stools.[19] Most of the patients who come to me with intestinal troubles have already been thoroughly dosed with fermented milk, and I cannot see that it does them much good. Occasionally it helps because of its laxative properties, or perhaps on account of the lactose which favors the growth of a nonproteolytic flora in the bowel.

Half of the space in Lane's book on intestinal stasis[20] is taken up with some old articles of his on bone and joint deformities. He believes that these things throw light on the formation of bands and membranes in the abdomen; but the recent findings of anatomists and embryologists are all against him. It appears now that these bands are not due to the sagging of overloaded colons or to chronic infection, but to congenital defects in the rotation of the bowel and in the cleavage of peritoneal layers.[21] They are just as common in fetuses and infants as in adults. We have learned that kinks are normal features of the bowel; that adhesions often do no harm, and that enteroptosis is normal and innocuous in a large proportion of men and women. Lane's operations have also been discredited. We know that an ileosigmoidostomy does more harm than good, and that the colon is not a useless organ that can easily be removed.

We see from all this that although there are many clinical facts which strongly suggest that poisons are absorbed from the digestive tract during constipation, we have as yet very little actual proof for this assumption. It is far easier to believe that toxins are absorbed in the presence of diarrhea, dysentery, typhoid or the gastro-enteritis of children. In some of these conditions, however, the toxic symptoms may be due not only to chemical substances, but also to the actual invasion of the mesenteric lymph nodes and blood by bacteria.[22] Schloss[23] has just shown also that the poisoning in children with vomiting and diarrhea is often uremic in nature. Dehydration leads to imperfect excretion and also to a rise in the nonprotein nitrogen of the blood.

SYMPTOMS NOT DUE TO TOXINS

I wish now to limit the discussion sharply to a certain type of case in which I can say confidently that the symptoms are not due to the absorption of any toxin. These are the people who come in complaining of a constipation which they feel sure is undermining their health and keeping them from a full use of their faculties. I am sure there is nothing imaginary about their symptoms, which certainly can be very annoying. The principal one is often a mental haziness, a "dopiness," or a feeling of having been drugged. In addition, they may have malaise, headache, spots before their eyes, a coated tongue and a poor appetite. Now, although I have already pointed to some of the things which make me slow to accept the doctrine of "autointoxication," there is one fact which alone would convince me that the symptoms complained of by these

16. Mutch: Quart. J. Med. **7**:448, 1914. Dale and Dixon: J. Physio. **39**:25, 1909.
17. Metchnikoff: The Prolongation of Life, New York, 1908.
18. Hull and Rettger: J. Bacteriol. **2**:47, 1917. Herter and Kendall: J. Biol. Chem. **5**:293, 1908. Einhorn, Wood and Zublin: Arch. f. Verdauungskr. **16**:300, 1910.
19. Rähe: J. Infect. Dis. **16**:210, 1915.
20. Lane: The Operative Treatment of Chronic Intestinal Stasis, London, 1915.
21. Harvey: Ann. Surg. **67**:641 (June) 1918. Flint: Bull. Johns Hopkins Hosp. **23**:302, 1912. Eisendrath and Schnoor: Ann. Surg. **60**:622, 1914.
22. Alvarez: Surg., Gynec. & Obst. **26**:651 (June) 1918. Woolley: J. Lab. & Clin. Med. **1**:49, 1915.
23. Schloss, O. M.: Intestinal Intoxication in Infants: The Importance of Impaired Renal Function, Am. J. Dis. Child. **15**:165 (March) 1918.

people are not due to the absorption of toxins. On being questioned, they practically all admit that these symptoms are relieved instantly by a bowel movement. My attention was drawn to this point years ago by a friend who worked in an adjoining office. He would often say to me, "It's no use; my brain is in a muddle; I am dizzy and my head aches so I cannot see; I will quit for the afternoon and go home." Ten minutes later he would return, perhaps whistling cheerfully, and would remark on the fact that an unhoped for bowel movement had promptly relieved him of his discomforts. I could go on to quote scores of such cases; cases which I am sure would convince any physiologic chemist that the symptoms were not due to circulating toxins. He would know that in that case relief would not follow immediately after removal of the source of the poison but later, when sufficient excretion had taken place to lower greatly the concentration of the substance already in the blood. We know that with normal kidneys a man will take two hours to get rid of perhaps 65 per cent. of a dose of phenolsulphonephthalein injected into his muscles. The layman appreciates this point best when he is reminded that after eating asparagus it takes him from twelve to fifteen hours to excrete most of the aromatic substance that is noticeable in the urine. A search through the literature shows that several men have commented on this sudden relief from symptoms and have recognized the impossibility of dragging in a chemical theory to explain them.[24]

EFFECT OF DISTENTION OF THE LOWER BOWEL

But if these symptoms are not produced by toxins, what are they due to? I feel sure that they are caused by the mechanical distention and irritation of the lower bowel by the fecal masses. Perhaps the best proof of this assumption is to be found in the observation made by my friend Dr. Saxton T. Pope that in these people the classical symptoms of "autointoxication" can be produced by inserting a cotton tampon into the rectum. I have since observed the same thing with masses of barium and with cacao butter suppositories. One woman experimented on was so upset by the presence of a suppository in her rectum that she dug it out with the handle of a spoon. She often had to do the same with small fecal masses, which nearly drove her crazy. Years ago, Leube[25] found that the pressure of his finger in the rectum was sufficient to produce typical symptoms in some of his patients. Zimmermann[26] found also that the rectum is exceedingly sensitive to pressure. Changes of from 2 to 3 mm. of mercury were perceived, and a rise of from 20 to 60 mm. caused distress.

The trouble with these people who complain of "autointoxication" is that they are unduly sensitive and keenly aware of what is going on in their bodies. I often ask such women if they could do any mental work with a flea crawling on them. They generally answer, "Certainly not. I would have to stop everything and get rid of it." Similarly, I know business men who will drop everything at the office and rush home to take an enema. It is this sensitiveness which distinguishes these people from those who are not worried or upset when their bowels fail to move.

There should be no difficulty in accepting these views when we remember how profoundly sensory impulses from our digestive tracts can influence our emotions, our mental processes and our vasomotor balance. Thus the sleepiness and mental hebetude which worry the "autointoxicated" are experienced by many people after dinner. We do not ascribe that to the absorption of poisons. It may be due to the absorption of food, but some observations on a man with a jejunal fistula made me think that it may be due solely to the distention and the increased activity of the bowel. I was led to this conclusion by the fact that the man would go to sleep when the intestine was made to contract actively on a small balloon inserted through the fistula. We know too that active intestinal contractions can slow the pulse and sometimes produce sweating.[27] They seem also to have something to do with dreams and nightmares. Similarly, hunger with its powerful gastric contractions can put a stop to all mental work and can make the subject restless and irritable. Some people suffer from headache, dizziness and nausea which can be relieved instantly by the taking of food. Carlson has shown that these symptoms are intimately associated with the hunger contractions. When the contractions are taking place the knee-jerk is more active.[28] Dmitrenko[29] accelerated the respiration and pulse in dogs and raised their blood pressures by stimulating the stomach in various ways, as by distention with balloons.

The faintness, dizziness, pallor and cold sweats of nausea, sudden diarrhea and flatulent distention are all due to the vasomotor upsets observed by Carlson in his work. Any one who has ever given an anesthetic to a person with a full stomach must have marveled at the wonderful difference between the state of circulation and respiration before vomiting took place and afterward. I have been impressed at times by the great mental depression occasioned in some patients by the presence of a duodenal ulcer[30] or by a small fissure in the anus. Surgeons are well acquainted also with the tremendous respiratory reflex that follows dilatation of the anal ring.

We see, then, that particularly in sensitive people the brain is profoundly influenced by afferent impulses coming from a distended, overactive or wrongly acting bowel. The effects follow so closely on the appearance and disappearance of the stimulus that we cannot drag in a cumbersome and roundabout chemical mechanism to explain them; they must be produced directly through the nervous system.

As I have pointed out in another paper,[31] many of the symptoms of constipation are due simply to the plugging of the lower end of the canal, which slows or stops the downward current and often produces ripples of reverse peristalsis. The food cannot go downward, so the bowel tries to refuse it admittance or sends it back again. Thus, intelligent people have told me how

24. Hertz: Constipation and Allied Disorders, London, 1909, p. 164. Cabot: Differential Diagnosis, Ed. 3, **1**:35, 1915. Hewlett: Functional Pathology of Internal Diseases, 1916, p. 198. Roberts, Dudley, in Discussion on Chronic Constipation, abstr. J. A. M. A. **69**:1518 (Nov. 3) 1917.

25. Leube: Deutsch. Arch. f. klin. Med. **36**:323, 1885.

26. Zimmermann: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **20**:445, 1909.

27. Mathieu: Colon Reaction Syndrome, Arch. d. mal. d. l'app. digestiv **7**:676, 1913.

28. Carlson: Am. J. Physiol. **31**:318, 1913; **36**:169, 1915; **45**:144, 1918. Rogers: Ibid. **41**:555, 1916. Brunemeier and Carlson: Ibid. **36**:194, 1915.

29. Dmitrenko: Inaug. Diss., Odessa, 1916, p. 312, quoted from Physiol. Abstr. **2**:30, 1917. Meltzer, New York M. J. **61**:749, 1895. Muns: Proc. Soc. f. Exper. Biol. and Med. **12**:87, 1915. Miller: Am. J. Physiol. **37**:240, 1915.

30. Von Bergmann: Berl. klin. Wchnschr. **50**:2374, 1913. Westphal and Katsch: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **26**:391, 1913.

31. Alvarez, W. C.: The Syndrome of Mild Reverse Peristalsis, J. A. M. A. **69**:2018 (Dec. 15) 1917.

the removal of the rectal plug has often given them immediate relief from regurgitation and belching. I believe that the distended and active colon sends off ripples which run up the bowel and break into deeper waves in the upper part of the stomach and esophagus. These waves can carry more than the usual amount of bile back into the stomach and up into the mouth and give rise to the term "biliousness." They account also for the lack of appetite and the feeling of fulness after eating a few mouthfuls. It has been shown that they deposit gastric and perhaps intestinal contents on the back of the tongue, and in that way give rise to the coat on that organ, the bad taste and the bad breath. The relief obtained by taking calomel is not due to any hypothetic action on the liver, but, I believe, to a restoration of the normal downward currents.

OTHER CAUSES OF SYMPTOMS

One must always make sure in any particular case that the symptoms complained of are really due to constipation and not to cardiovascular disease, tuberculosis or something else. A careful history often shows that overwork, worry and lack of sleep give rise to the symptoms and finally to the constipation. I have in another paper[32] given some of my reasons for believing that nervousness is generally the cause and not the result of constipation.

Although attacks of migraine, scintillating scotoma, dizziness, etc., may often be associated with constipation and sometimes warded off by purgation, many of my patients who have been induced to keep careful records have found that the attacks were really just as frequent when their bowels were well cleared or working normally. Many of them have discovered also that the spells are likely to come more frequently after periods of fatigue, excitement, worry and the loss of sleep. A number of these people have returned after months or years to tell me that the constipation was gone and the symptoms no better. Others remember that they had the symptoms during childhood when their bowels moved perfectly. It is significant that other members of the family often have the same symptoms without the constipation. Several years ago Franz[33] made a very careful metabolic study of a patient with migraine, and could find no change in the constituents of the blood during the attacks. He was forced to conclude that the disturbances arise in some part of the brain much as they do in epilepsy. I believe the gastro-intestinal upsets are secondary and comparable with those seen with brain tumors. In one of my patients attacks of petit mal sometimes take the place of his migrainous headaches. Some patients have been greatly helped by the removal of diseased appendixes. They still have the headaches, but these come less frequently and the gastro-intestinal symptoms are less marked.

In the worst of these cases of "autointoxication," the sufferers are undoubtedly psychopathic. I have learned to recognize the type at the first interview, and I no longer waste much time with them, as it is practically impossible to change their habits of thought. They are generally of neurotic or insane ancestry and often give a history of "nervous breakdowns" in the past. Nowadays they come in with a box full of roentgen-ray plates, and their estimate of the ability of the physician rises or falls with the number of kinks which he can discover in them. These people want to do all the talking, and arguments make no impression on them. Artful questioning will often elicit the fact that they have from one to six movements a day, but these are not large enough; they are not shaped properly and their expulsion does not leave the desired feeling of comfort and rectal emptiness. After great and prolonged exhortation, they may promise to leave their bowels alone for forty-eight hours, but when they return they admit that they became worried and thought there would be no harm in their taking some castor oil the first night, a dose of salts in the morning and several enemas along the way.

Some of my confrères maintain that this mental aberration is due to long-continued poisoning, but I cannot believe that when I learn that these people were hypochondriacs before they became constipated. Why can we not forget the colon and glands of internal secretion long enough to let the brain have a few diseases and hereditary defects all its own? Those of us who are not alienists seem to have the idea that all crazy people are plainly insane, and all locked up in asylums. Nothing is farther from the truth, and the gastro-enterologist must constantly be on the watch for borderline cases.

In chatting with medical friends it is interesting also to learn that the same individuals, when they do happen to get over their colonic phobias, show up at the oculist with floating spots, queer failures of accommodation, unbalanced external muscles, etc. They go to the genito-urinary man for sexual troubles and "lost manhood," and to the orthopedist with hysterical joints and weak backs. These people are unending sources of income to the enthusiasts in all specialties, to the unscrupulous, the reckless operators, the osteopaths and the quacks. The honest physician who admits his failure to find anything physically wrong is discredited and soon discharged, often without payment for his trouble.

TREATMENT

Some may say now, "Well, you admit the reality of the symptoms, you admit that they are often caused by constipation and that they can be relieved by clearing the bowel—what difference does it make whether they are ascribed to autointoxication or to nervous agencies?" My answer is that it makes a tremendous difference. In the first place, as scientific physicians, we must seek the truth; if the facts of the case support the mechanical and nervous theory and not the chemical one, we must follow the facts. In the second place, the new idea is invaluable when it comes to treatment. The old theory produces hypochondriacs; the new explanation may set them free. Only by coming to believe in it can they regard their colonic functions as unconcernedly as does the normal man, and that is the first step toward a cure.

A case showing clearly the harmful effects of the old teaching and the helpful effects of the new came to my attention about two years ago, when a prominent business man, a big, athletic fellow, told me this story:

He had been perfectly healthy until six years before, when the fear of approaching baldness led him to consult a well-known dermatologist. The doctor told him that baldness was due sometimes to "autointoxication," and asked if he was constipated. He said he never had been, but this did not discourage the physician, who suggested that stasis might still be present and the bowel movements insufficient. This sounded plausible, so the patient began to take cathartics every day. Before long he was going from physician to physician in

32. Alvarez: California State J. M. **14**:363, 1916.
33. Franz: The Physiological Study of a Case of Migraine, Am. J. Physiol. **19**:14, 1907.

search of stronger purgatives. He saw a prominent internist who found what he thought were pronounced abnormalities in the colon and gave a gloomy prognosis. Later he went to a well known surgeon, who promised to cure him by removing his appendix. There never had been any symptoms referable to that organ, put the patient was now desperate and ready for anything that might put a stop to an intoxication which he had been led to believe would sooner or later undermine his mental powers. The operation brought no relief, and the surgeon explained that there were so many Lane's kinks that only a colectomy would now offer any hope. It was in regard to the advisability of this procedure that he consulted me. I found him a nearly perfect specimen of humanity with as normal a digestive tract as one could wish to see. What stasis he had was in his rectum. Sunday morning when he didn't have to rush for his train, he generally had an unaided bowel movement, which was the main event in his week. I suggested that if he would leave his bowels alone he might go back again to the normal condition from whence he had started. After several hours of argument he agreed to my proposal. His bowels moved after three days of anxious waiting, and they have been moving satisfactorily ever since. His colon no longer dominates his mental processes, but has receded into the background where it belongs. He still feels the classic symptoms at times, but they do not bother him any more, because the element of fear is gone. Now that he knows that no harm is being done to his body, he is perfectly willing to leave his colon to its own devices. Many others who have been cured in the same way tell me that it was only this fear that made them act so foolishly about their bowels.

Such cures can be obtained only with intelligent, well-balanced people who can follow an argument, stick to a course of action and, if necessary, suffer a little discomfort before attaining their end. If after a thorough trial it appears that the bowels will not move spontaneously without occasioning too much distress, the patient may use liquid petrolatum, agar or stewed fruit. Many of these people have such irritable, spastic colons that they cannot be helped at all if they continue to use bran and other coarse foods. These substances upset digestion and lead to the formation of gas. If an extra stimulus is essential, as it seems to be in some people, I am sure it is preferable, unless the patient has the digestion of an ostrich, to give a mild chemical stimulus rather than a rough mechanical one. I cannot understand why some physicians warn their patients against enemas. It seems a shame to upset 24 feet of intestine with a purgative when the material to be removed is in the rectum or sigmoid within easy reach of a little water.

These "autointoxicated" people are often so anxious to find a royal road to recovery that they are ready to be operated on by any surgeon who will promise a prompt and complete cure. My experience has taught me to avoid operations on such patients even when the roentgen ray shows the presence of distinct abnormalities. They are so sensitive that the surgeon can hardly leave the abdomen in such perfect condition that they cannot continue to feel something.

SUMMARY

"Autointoxication" is commonly diagnosed when a physical examination would show other more definite causes for the symptoms. Those who believe that intestinal stasis can account for a long list of disease conditions have little proof to offer for their views. Many of the assumptions on which they rest their case have been proved to be wrong.

The usual symptoms of the constipated disappear so promptly after a bowel movement that they cannot be due to absorbed toxins. They must be produced mechanically by distention and irritation of the colon. They occur in nervous, sensitive people. It has been shown that various activities of the digestive tract can profoundly affect the sensorium and the vasomotor nerves. The old ideas of insidious poisoning lead to the formation of hypochondriacs: the new explanation helps to cure many of them.

177 Post Street.

COMPARATIVE RESULTS OBTAINED IN THE TREATMENT OF PULMONARY TUBERCULOSIS

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I. BY GRADUATED LABOR, AS EMPLOYED AT THE BROMPTON HOSPITAL SANATORIUM AT FRIMLEY, ENGLAND

The treatment of pulmonary tuberculosis by graduated labor has been systematically carried out at Frimley, England, for a number of years, and this method of treatment has had considerable influence on a number of lung specialists in this country. Dr. Marcus Paterson was in charge of the sanatorium at Frimley during the early years of its existence, and it is largely due to his work and writings that graduated labor has been used in England and America. Of the patients treated at Frimley, a great majority first passed through the wards of the Brompton Hospital in London, whence, if found suitable after a period of observation, they were drafted on to the sanatorium. They were not chosen at random; still less was every case of pulmonary tuberculosis at Brompton passed on in turn; on the contrary, the cases were carefully selected, only those patients being chosen who were free from fever or other constitutional symptoms, who possessed considerable vitality, and who had begun to show signs of improvement. So far as possible, also, patients with signs of limited disease were preferred, although it was soon found that patients with extensive disease, but of a quiescent type, often did remarkably well.

I was struck with two prominent facts while reading Paterson's book.[1] The first was that he paid more attention to the physical condition of his patient than he did to the foci of disease. He repeatedly emphasizes the fact that the physical condition is of much greater importance than an examination of the lungs. The second fact was the great importance he placed on the auto-inoculations that were obtained from exercise and work. These two facts are absolutely opposed to my interpretation of the modern method of treating pulmonary tuberculosis. In my judgment, a physical examination of the lungs is the only sure way that one can get a knowledge as to how the foci of disease are acting. It is a common occurrence to have patients consult us who are in good muscular physical condition and at work, and yet we find a slowly progressing disease. It is impossible to know how the disease is acting without a careful physical examination of the lungs. My principal object in treatment is to treat the foci of disease, but not to neglect but also treat the general physical condition. My chief aim is to change an open into a closed tuberculosis or an active into an inactive one. I believe

1. Paterson, Marcus: Auto-Inoculation in Pulmonary Tuberculosis, London, James Nisbet & Co., 1911.

that this is accomplished more surely and with better permanent results by rest than by graduated labor. I am quite aware that Paterson gave bed rest treatment to his patients with active disease, but when these cases became quiescent, he paid more attention to the physical condition than to the lung condition.

The second fact that Paterson emphasized very strongly was the value of the auto-inoculations obtained from graduated labor. This is also absolutely opposed to my interpretation of the modern treatment of pulmonary tuberculosis. My aim is to avoid auto-inoculations in every way possible, and to get the foci of disease quiescent as quickly as possible. Auto-inoculations are the results of congestion of the foci in the lungs, and it is just these congestions which are extremely dangerous and which we should try to avoid. We have no known way of controlling auto-inoculations, and it is a well known fact that one severe overexertion will sometimes cause such a serious congestion of the disease as to produce a fatal result. It is my firm conviction that the attempt to treat pulmonary tuberculosis by means of auto-inoculations is extremely dangerous and absolutely contrary to the safe method of placing the foci of disease in a quiescent condition as quickly as possible and keeping them quiescent.

II. BY BED REST TREATMENT

Bed rest treatment has been carried out very successfully by Dr. Joseph H. Pratt[2] of Boston. His results were obtained in the homes of the sick poor

TABLE 1.—EMMANUEL CHURCH TUBERCULOSIS CLASS: STAGE OF DISEASE AND CONDITION OF ALL CASES, FROM ONE TO TEN YEARS AFTER DISCHARGE, INCLUDING THOSE WHO DIED WHILE UNDER TREATMENT IN THE CLASS.*

Stage	Total Number	Per Cent.	Condition, July, 1916			
			Well	Living	Dead	Per Cent. Well
I	67	35	59	2	6	88
II	55	29	34	2	19	62
III	69	36	14	9	46	20
Total	191	100	107	13	71	

* Seventy-six per cent. of the first and second stage patients were well. No first stage patients died in the class. All the cases were traced.

in a supposedly unfavorable climate. Supervision was maintained by the class method. There was no selection of cases. In 36 per cent. the disease was far advanced when the rest treatment was begun. The average duration of bed rest treatment was about four months, and the duration of graduated exercise combined with bed rest from four to seven months, making the usual duration of treatment from eight to eleven months. A few patients were not allowed to take regular exercise for from one to two years. Strict obedience to the rules was required. In tabulating the results, Pratt included those who were dismissed because they did not follow the rest treatment faithfully, those who left the class voluntarily, and those who died while taking the treatment. Eighty-eight per cent. of those admitted in the first stage were well and working from one to ten years after their discharge, 62 per cent. of the second stage, and 20 per cent of the third.

2. Pratt, J. H.: The Importance of Prolonged Bed Rest in the Treatment of Pulmonary Tuberculosis, Am. Rev. Tuberc. **1**:637, 1918; The Class Method of Treating Consumption in the Homes of the Poor, J. A. M. A. **49**:755 (Aug. 31) 1907.

In the period of ten years ending in July, 1915, Pratt treated 191 patients. The condition of these patients from one to ten years after their discharge is given in Table 1.

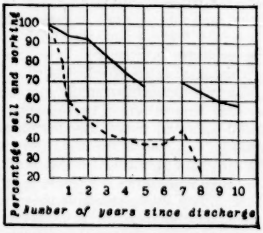
The cases selected for the comparison of the effect of prolonged bed rest with graduated work are those in which the wage-earning power had been restored while under treatment (Table 2 and chart). Many

TABLE 2.—AFTER-CONDITION OF PATIENTS WITH TUBERCLE BACILLI IN SPUTUM, DISCHARGED WITH WAGE-EARNING POWER RESTORED*

Number of Years after Discharge	Brompton Hospital Sanatorium; Treatment, Graduated Labor				Emmanuel Church Tuberculosis Class; Treatment, Prolonged Bed Rest		
	Total Number of Cases	Number of Cases Minus Those Lost Sight of	Number Working	Per Cent. Working	Total Number of Cases	Number Working	Per Cent. Working
1	1,051	965	593	61	42	40	95
2	1,051	868	434	50	39	36	92
3	741	581	265	46	39	34	87
4	475	344	153	44	38	29	76
5	292	200	81	39	34	24	71
6	150	96	40	42	32	22	69
7	39	22	5	23	30	21	70
8	....	...	...	..	20	14	70
9	....	...	...	..	14	9	64
10	....	...	...	..	8	4	50

* Of the Brompton patients, those lost sight of have been deducted in determining the percentage working. There were none lost sight of in the Emmanuel Church tuberculosis class.

of the patients treated by Paterson at Frimley did five hours of hard labor a day before leaving the sanatorium without any apparent ill effect. After returning to work, a large number of them broke down within the first two years. The rapid drop in the percentage of patients well and working is well shown on the chart in the sharp and sudden drop from 100 per cent. at the beginning to 62 per cent. at the end of one year and 50 per cent. in two years. In Pratt's cases, there was a drop from 100 per cent. at the beginning to 95 per cent. at the end of one year and 92 per cent. at the end of two years. Pratt's figures show very clearly the important fact that strengthening a man's muscles and improving his general condition by graduated labor is not the best way to heal the tuberculosis foci in the lungs. His chart and tables clearly show that prolonged rest leads to permanent recovery in a large proportion of the cases treated.



Patients with tubercle bacilli in sputum discharged with earning power restored; solid line, Emmanuel Church tuberculosis class; broken line, Brompton Hospital Sanatorium.

At the end of one year, after discharge, there were 595, or 81 per cent., of the Brompton patients and forty, or 95 per cent., of the Pratt patients well and working. At the end of the seventh year, there were five, or 33 per cent., of the Brompton patients and twenty-one, or 70 per cent., of the Pratt patients well and working.

The results obtained by Pratt illustrate the great value of rest treatment over graduated labor. Pratt's

figures also demonstrate another very important fact, namely, that patients who undergo prolonged and intensive rest treatment do not tend to relapse.

It is the constant experience of most physicians who treat pulmonary tuberculosis at health resorts that the home treatment of the disease is most frequently extremely bad. As a rule, the specialist at the health resort is more skilled than the physician in the city in the treatment of this disease, and the routine of the open air treatment can be carried out much better in the sanatorium or health resort than at home. Pratt's results, however, show that he obtained results at home by his bed rest treatment which are superior to those obtained in the same climate at the Rutland Sanatorium[3] in Massachusetts, and at the Massachusetts State Sanatorium. His results are also equal to those obtained at the Trudeau Sanatorium at Saranac Lake, N. Y.,[4] and at the Laurentian Sanitarium at Ste. Agathe des Monts, P. Q., Canada.[5]

The patients at Rutland Sanatorium in Massachusetts were drawn from Boston and its suburbs and lived, when at home, under the same social and economic conditions as did Pratt's patients. Rutland Sanatorium, although limited to favorable cases, had less than 25 per cent. of its patients well and working from eight to ten years after their discharge, while 59 per cent. of Pratt's patients were well and working after this length of time.

Among a large series of patients from Boston and vicinity who were treated at the Massachusetts state sanatoriums, Miss Farmer[6] found that 24 per cent. were well from four to seven years after their discharge. Of Pratt's patients, there were 63 per cent. who were well from four to seven years after their discharge.

III. REST AND EXERCISE AS EMPLOYED BY MOST SANATORIUMS

I will now briefly compare the results obtained by graduated labor with those obtained by the modern rest and exercise treatment, as employed at most sanatoriums. For purposes of comparison, I will take two sanatoriums which use rest and exercise, but do not allow their patients any manual labor. The exercise consists of walking exercise practically entirely. These two sanatoriums are the Trudeau Sanatorium and the Laurentian Sanitarium. The class of patients admitted to these institutions is the same, and the methods of treatment are identical. Rest treatment is used very thoroughly where indicated, but not so intensively as employed by Pratt.

TABLE 3.—CONDITION OF ADIRONDACK COTTAGE SANITARIUM PATIENTS FROM ONE TO TEN YEARS AFTER DISCHARGE (1908-1916)

Stage	Number of Patients	Well	
		Number	Per Cent.
I	719	515	72
II	1,166	669	57
III	44	11	25
Total	1,929	1,195	

By taking an average of the percentages for the seven years of the Frimley results, we find that 44 per cent. of the patients discharged during a period of from one to seven years were well and working. Table 3 shows that during the period of from one to ten years, the Adirondack Cottage Sanitarium (Trudeau Sanatorium) shows that 61 per cent. of patients were well and at work. Table 4 shows that 56 per cent. of the patients who were discharged from the Laurentian Sanitarium were well and working during a period of from one to nine years.

Here again we have convincing proof that rest treatment is much superior to graduated labor treatment.

TABLE 4.—CONDITION OF LAURENTIAN SANITARIUM PATIENTS

Of 558 patients who have been treated in the Laurentian Sanitarium for a period of thirty days or longer, since 1908, 529 have been traced, and are thus classified: *

	Number	Per Cent.
Living and leading active lives	295	55.76
Still invalided	104	19.65
Total living	399	75.4
Died	130	24.6
	529	100

* Twenty-nine patients could not be traced.

It still remains to compare the intensive bed rest treatment as employed by Pratt with the usual rest and exercise treatment. We see from Table 1 that Pratt had a total of 191 patients, and that of these 107, or 56 per cent., were well from one to ten years after discharge. The Adirondack Cottage Sanitarium (Trudeau Sanatorium) had a total of 1,929 (Table 3), and of these, 1,195, or 62 per cent., were well from one to ten years after discharge. The Laurentian Sanitarium (Table 4) had a total of 558 patients, and of these, 295, or 55.76 per cent., were well from one to nine years after discharge.

It is thus seen that the results obtained by the intensive bed rest treatment as employed by Pratt are practically the same as those obtained by the ordinary treatment of rest and exercise as employed at the Adirondack Cottage Sanitarium and at the Laurentian Sanitarium. A critical examination of Pratt's bed rest treatment and the usual rest treatment shows that the two methods are practically the same. Pratt employs bed rest treatment to all his patients, and the others employ it only when indicated. The difference is, therefore, only one of degree. The results are the same.

3. Fourteenth Annual Report of the Trustees of the Massachusetts State Sanatorium at Rutland, Boston, 1911.
4. Adirondack Cottage Sanitarium Report of 1916, Twelfth Medical Supplement, Saranac Lake, N. Y., 1917.
5. Laurentian Society for the Treatment and Control of Tuberculosis, Ninth Annual Report, Ste. Agathe des Monts, P. Q., Canada, October, 1917.
6. Farmer, Gertrude L.: Is Sanatorium Treatment Worth While? M. & S. J. 170:411, 1914.

Causes of Declining Birth Rates.—It is now well recognized that the fall in the birth rate is due chiefly, if not entirely, to the volitional restriction of the size of the family, that is, to the adoption of birth control principles. There are good grounds for believing that among the thinking classes of the community a majority of married couples limit their families by one means or another. Moreover, there is evidence that among this class the average size of the "limited" family is larger rather than smaller than that of the "unlimited" family. The explanation of this apparent paradox is, of course, that those couples with naturally low fertility have no need for limitation, whereas those with naturally high fertility are the most likely to resort to it. I would suggest that the fall in the birth rate is due to a reduction in the number of large families rather than to any great increase in the number of small ones. I think it very doubtful whether any appreciable number of childless marriages are due to the practice of birth control.—C. Killick Millard, M.D., D.Sc., *Journal of State Medicine.*

TWENTY-SIX CASES OF HYPERTROPHIC STENOSIS OF THE PYLORUS IN PRIVATE PRACTICE

WITH OPERATION BY THE RAMMSTEDT METHOD *

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During the past four years twenty-six of my private patients with pyloric stenosis have been operated on by the Rammstedt method. Twenty-four were operated on by Downes at the Babies' Hospital, one by Downes at St. Luke's and one by Jennings at the Brooklyn Hospital.

In the cases reported, seventeen were boys and nine were girls. The sex in my series of cases agrees with the observation of Still, who reported that among forty-two cases, thirty-five were males. Ibrahim found boys affected four times as often as girls.

Thirteen patients represented the first pregnancy, six the second, five the third, one the fourth and one the fifth. In one, a second pregnancy, the first-born also had pyloric stenosis and died after gastro-enterostomy. All were full-term infants.

The ages at the time of operation ranged from 3 to 16 weeks. Fourteen were 6 weeks old or less, four were under 4 weeks, eight were from 6 to 11 weeks, and five were from 11 to 16 weeks.

The lowest weight at operation was 4 pounds, 2 ounces; the birth weight was 5 pounds, 8 ounces. This patient made an uneventful recovery. A 10-pound child was operated on at the sixth week, then weighing 6 pounds, 4 ounces, a loss of 3 pounds, 12 ounces. This child recovered. An infant weighing 9 pounds, 2 ounces at birth began vomiting at the fourth week. After persistent vomiting for seven weeks he came under my observation. His weight was then 5 pounds, 11 ounces, a loss of 3 pounds, 7 ounces. He died from exhaustion, twenty-six hours after operation. Twelve had made a gain of from 3 ounces to 2 pounds before the onset of vomiting. Two held their birth weight. In the others the birth weight was not looked on as sufficiently accurate to be recorded. Six held or exceeded their birth weight at the time of operation. These patients, of course, had made a pronounced initial gain.

In a collective study of 266 cases by Ibrahim, there were no patients older than 8 weeks at the onset. In one of my patients, vomiting began at birth, eleven were 2 weeks old or under, twelve between 2 and 4 weeks, one was 6 weeks and one 8 weeks.

The onset was abrupt in all but one case.

Twenty-three patients were entirely breast fed at the onset of vomiting, and nine were entirely breast fed when they came under observation. In fourteen the nursing had been discontinued because the breast milk had been thought not to agree. Only two had been bottle-fed since birth.

The vomiting in all was projectile. Twenty-three had vomited after every feeding. In the others there was collective vomiting; two or three feedings were retained and then all vomited. There was no regurgitation or mouthful vomiting. All foods and fluids were vomited alike.

In twenty-four cases there was retention of food three hours or more after every feeding. In two this observation was not made.

The urine and stools were very scanty in all.

There was a steady loss in weight in all the patients after the onset of the vomiting.

There was no elevation of the temperature in any of the cases.

The infants were all very hungry.

The peristaltic stomach wave was present in every case. This is best obtained by washing the stomach and allowing 2 ounces of water to remain, or to give 2 ounces of food. If the patient is given a pacifier and he is then placed on his back with the light favorable for observation, the wave phenomena will shortly appear.

Tumor was palpable in all the cases but one. The tumor may best be palpated when the stomach is empty. In a few cases the tumor will be more readily felt when the stomach contains from 2 to 3 ounces of food. It is most frequently located above and to the right of the umbilicus, and is a small, oblong, movable mass.

In seventeen there was no postoperative vomiting. Nine vomited postoperatively, but all of these recovered. One vomited twenty-two times, and one nine times. Postoperative temperature above 101 was noted in seven. In one it was 104.8, and in one 103. All recovered.

REPORT OF FATAL CASES

CASE 1.—An infant, aged 11 weeks, was greatly emaciated, had vomited for ten weeks, and had lost 3 pounds, 7 ounces from the greatest weight, which was 9 pounds, 2 ounces. The child died in collapse twenty-six hours after operation.

CASE 2.—A boy, aged 9 weeks, had vomited for two weeks and was in fair condition. I advised immediate operation. This advice was not followed. Other physicians were consulted and he was treated palliatively for three weeks. He was then brought to me in wretched condition, having vomited in all five weeks, and having decreased in weight from 7 pounds, 8 ounces to 6 pounds, 9 ounces. He was operated on and died of exhaustion twenty-four hours after operation.

CASE 3.—A boy, aged 7½ weeks, was greatly exhausted before operation, owing to prolonged starvation. He had vomited for four and a half weeks. His greatest weight was 8 pounds, 4 ounces, and his weight at operation 6 pounds, 15 ounces. He died in collapse five hours after operation.

CASE 4.—A child, aged 3½ months, had vomited for ten weeks and had decreased in weight from 9 pounds, to 6 pounds, 6 ounces. In spite of prolonged intermittent vomiting, the child was in fairly good condition. I advised immediate operation but was persuaded by the family to take the patient under observation for a few days with a view to avoiding operation. The patient developed an acute gastro-intestinal infection, lost rapidly in weight and vitality, and in three days the operative risk had risen more than 50 per cent. The child died in collapse five hours after operation.

POSTOPERATIVE MANAGEMENT

According to the routine carried out at the Babies' Hospital, which has been evolved under the direction of Dr. L. Emmet Holt and Dr. W. L. Downes, the infant is wrapped in a warm blanket before leaving the operating room, and when in bed is surrounded by hot-water bottles outside the blanket. For an hour or two following operation the head of the bed is kept lowered to prevent the aspiration of mucus into the larynx. This is absolutely necessary while the infant is still under the influence of the anesthetic. When nourishment is commenced, the head of the bed is raised to a level position. Ten or twelve hours later the patient is placed in a semierect position, which tends

* Read before the American Pediatric Association, Lenox, Mass., May 28, 1918.

to prevent regurgitation of food and permits the more easy escape of gas.

As soon as the patient is placed in bed, a hypodermoclysis of 120 c.c. of physiologic sodium chlorid solution is given, and if the condition is poor, a hypodermic of 5 minims of epinephrin, 1:1,000, is given and repeated in from four to five hours. Dilute whisky, 5 minims every three hours for the first five or six days, has proved of great value. Transfusion in a few cases of collapse has been of material benefit, from 80 to 120 c.c. of blood from either parent being given, preferably into the median basilic vein.

One and one-half hours after operation, provided the patient has sufficiently recovered from the anesthetic, 10 c.c. of water are given, and one and one-half hours later 4 c.c. of barley water and 4 c.c. of breast milk. Two hours later 8 c.c. of breast milk and 4 c.c. of barley water are given. Breast milk is then given every three hours, alternated with water, and gradually increased in amount so that at the end of forty-eight hours about 30 c.c. are given at a feeding, with 4 c.c. of barley water. The barley water is then discontinued, and on each successive day the amount of milk permitted is increased 5 c.c. at a feeding, so that by the eighth day following operation the patient is having 60 c.c. every three hours. On the third day the intervals of feeding at night are lengthened to four hours, so that seven feedings are given instead of eight. By the time the baby is taking 60 c.c. of breast milk at each feeding he may be put to the breast once. The baby is weighed before the nursing and at intervals of three minutes until he has nursed 60 c.c. from the breast. The following day three nursings are allowed, so that by the eleventh or twelfth day the patient is nursing entirely and is able to leave the hospital. Measurement of food during the nursing must be kept up one week later by carefully weighing both before and after. For one month or longer a wetnurse is advisable if the mother is not able to nurse her child.

In well-nourished infants, a sponge bath is given daily until the wound is completely healed. In emaciated children, an oil rub is preferable until such time as the tendency to subnormal temperature has passed.

In cases of vomiting due to accumulation of gas in the stomach, the child should be raised to an upright position after feeding. If this does not suffice, a soft rubber catheter may be passed into the stomach before each feeding. If still persistent, gastric lavage may be employed. One teaspoonful of castor oil is usually given twenty-four hours after operation if there have been no stools. There should be from two to three stools a day. If they are more frequent, protein milk is substituted for three or four breast feedings.

The wound is covered with a narrow fold of sterile gauze held in place by adhesive straps. It is not disturbed for four or five days unless some indication arises. The stitches are removed on the ninth or tenth day.

MORTALITY

A low mortality in these cases of pyloric stenosis depends on early diagnosis and immediate operation. The presence of a palpable tumor demands prompt surgical interference. The longer operation is delayed in a case with a well-marked tumor the greater the surgical risk. This does not mean that a child with a palpable tumor cannot recover without operation. I have had patients with palpable tumor recover and others that died without operation and after operation because of operative delay. Operation by the Rammstedt method (which means a rapid operation) will insure a mortality of about 5 per cent. in patients that have not vomited more than two weeks. The surgical risk that the patient offers depends in large measure on the duration of the vomiting. It is assumed, of course, that adequate after-care, which includes the use of breast milk, is supplied.

It will be observed that my four patients who died had vomited from four and a half to ten weeks.

A false security in these cases is assumed from the fact that the loss in weight is often temporarily arrested or perhaps has not been excessive. The cases reported above represent those in which operation was performed during the past four years and not all those that have come under observation, nor do they include those patients operated on or otherwise treated previous to 1914, when the results were not so brilliant. Cases treated by nonoperative methods will form the topic of a later communication. Sudden and unexpected death in the palliatively treated cases of pyloric stenosis is not uncommon. Acidosis,[1] due to defective urinary secretion with retention of acids, may explain these sudden deaths.

132 West Eighty-First Street.

CHRONIC PERICHOLECYSTITIS WITH MARKED GASTRIC SYMPTOMS

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The fact that inflammatory affections of the gallbladder, and stones in the gallbladder, are associated with gastric symptoms is sufficiently appreciated; but a series of cases recently seen in the New Haven Hospital has led me to doubt whether the association of marked and almost exclusively gastric symptoms due to inflammatory conditions about the gallbladder (with resultant adhesions in its neighborhood) has been sufficiently well recognized.

The complaints of the five patients here reported were almost entirely referred to the stomach, and they were of so severe a degree as to cause insistence in every case on operative intervention. In every case the freeing of the adhesions in the neighborhood of the gallbladder, and cholecystectomy, have resulted in prompt and complete relief.

It is certainly true that much has been said and written concerning abdominal adhesions that is not justified by wide experience in surgery for one often meets well marked adhesions in the abdomen that have caused no symptoms whatever, and on the other hand moderate adhesions that are so placed as to be responsible for a good deal of discomfort or suffering.

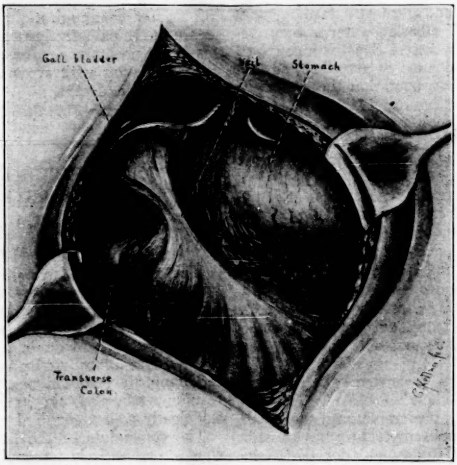
The type of adhesion which I have in mind in this paper and which was present in all the cases reported was not the light, veillike structure often encountered, but a thick, firm, extensive adhesion of the gallbladder to the stomach, to the liver, to the transverse colon and to the abdominal wall. Whether these adhesions represent a previous cholecystitis with stones, the stones having been meanwhile discharged, it is impossible to say. A study of the onset as given in the his-

1. Schloss, O. M.: Intestinal Intoxication in Infants, Am. J. Dis. Child. **15**:165 (March) 1918.

tories does not indicate that this is always the case. In Case 1, for example, there had been no attack to suggest gallstones in the gallbladder at any time. Gradually, the only symptom complained of ("feeling as though there were a lump in the stomach") made its appearance and persisted for a year and a half. In Case 3 there had been for three years a dull, gnawing pain in the pit of the stomach. This pain suggested rather the pain of an ulcer and was relieved by eating; but at operation no sign of ulcer was found, though it is true that the cystic duct was adherent to the surrounding tissues. In Case 5, the pain had been unusually severe, usually localized in the epigastrium but occasionally radiating to the back and shoulder. In a word, the character of the pain varied from a gastric distress to the pain characteristic of ulcer or of stone in the gallbladder, but at the time of operation neither of these conditions was found, except that in Case 2 the gallbladder contained one large stone. In this case the intensive adhesion of the gallbladder to the transverse colon was such a marked feature that I have included it in the series, though it is possible that the case was simply one of cholelithiasis, and that the adhesions had little to do with the clinical picture.

The importance of this class of cases consists in impressing on us that in patients in whom clinical examination does not reveal signs of gastric ulcer and in whom the physical examination for gallstones is negative, a clinical picture of pain in the upper quadrant or in the stomach region associated with eructations of gas may be entirely due to a marked inflammation about the gallbladder leading to its adhesion to surrounding viscera. It is interesting to notice that in one of the cases, Case 4, blood was found in gastric contents by the benzidin test. In all these cases a cholecystectomy gave prompt and complete relief, and this, of course, is the operation that should be done. Indeed, if this clinical picture represents the late results of a previous cholelithiasis, it is another argument for doing a cholecystectomy when gallstones are found in the gallbladder, and this is the operation which should, I believe, always be done. It is an operation that is much more difficult to do after a gallbladder has been drained, as I have recently had occasion to experience, having performed a cholecystostomy on a patient on whom a cholecystostomy for gallstones had been done some years previously. In this patient the gallbladder was tightly adherent to the pylorus and by these adhesions had been drawn backward toward the posterior peritoneal wall so that it had to be very carefully dissected away from the neighborhood of the vena cava, and in cutting its cystic duct the greatest possible care had to be used so as not to injure the common duct. This is a point to which recent writers have called frequent attention, but it is a point that cannot be too much stressed in discussing cholecystectomy. There is no excuse for injury of the common duct in dividing the cystic duct, if the cystic duct is thoroughly freed before it is clamped. If this is not done, however, the variations in the anatomic relations of the cystic and common duct, and the changes in its position due to adhesions, will frequently lead to inclusion of the common duct in the clamp which grasps the cystic duct and therefore to injury of the former.

I do not think it can be said that the clinical symptoms associated with adhesive pericholecystitis are characteristic enough to make us sure of a diagnosis of adhesions about the gallbladder. The study of these cases does not reveal any characteristic symptom or syndrome, but it becomes increasingly evident that symptoms referable to the right upper quadrant should, in all cases in which positive diagnosis cannot be established, lead to an exploration; for, aside from the well-known fact that both cholelithiasis and gastric ulcer may be overlooked if routine explorations of this kind are not made, it is also true that cases of the sort here reported, which in their milder form might well be classed as gastric neurasthenia, would go unrelieved unless explored and the adherent gallbladder excised. No results could be more gratifying than the complete relief afforded these wretched patients.



Veil of firm adhesions found in Case 1.

REPORT OF CASES

CASE 1.—*History.*—M. A., woman, aged 40, for about one year had had a feeling "as though there were a lump in the stomach." There had been no actual pain, but the distress from the lump had been present constantly and had made life almost unendurable, so much so that she insisted on operative exploration. There had been no evidence of gastric obstruction, though she had noticed that she vomited whenever tea or coffee was taken with the meals. When these were omitted there was no vomiting. The previous history was unimportant.

Gastric analysis revealed: fasting contents, 30 c.c.; free acid, 40; total acid, 60; microscopic and benzidin, negative. Test meal, 100 c.c.; free acid, 20; total acid, 60; microscopic and benzidin, negative.

The symptom as to the lump in the stomach, which was the only feature of the disease, was not connected with any cause which the patient could determine, and bore no relation to food or to hunger. It was associated with nausea, but there was no vomiting. The symptoms were worst in the morning, and the patient never had any appetite for breakfast. She was a nervous woman, but there was no hypertrophy of the thyroid or sign of exophthalmic goiter.

The roentgen-ray examination threw no definite light on the case. An exploration was advised, but no assurance could be given that relief would be obtained.

Operation and Result.—When the peritoneal cavity was opened, a sheet of strong adhesions extending from the under surface of the right lobe of the liver spread downward in fan-shaped fashion, enveloping the gallbladder, to the stomach, transverse colon and hepatic flexure, and backward, encroaching on the foramen of Winslow. The gallbladder was slightly larger than normal but otherwise unchanged, and contained no stones. The appearance of the veil is shown in the accompanying illustration. The veil was divided so as to free all the viscera involved and the gallbladder was dissected free and removed.

There was complete relief of symptoms, and the patient left the hospital cured, able to eat well, and entirely free from distress.

CASE 2.—*History.*—D. B., woman, aged 43, for three weeks had complained of severe pain in the stomach with eructations of gas. The pain was not related to meals and was constant. It was dull and gnawing in character and had made life so miserable that operation was insisted on. There was no jaundice nor history of jaundice. The abdominal examination revealed some tenderness in the region of the gallbladder and just under the left costal margin. The patient would not relax the rectus muscle, and examination was difficult; but it was my impression that a mass was felt in the region of the gallbladder.

Roentgen-ray examination indicated a probable ulcer of the first portion of the duodenum; marked adhesions in the terminal pyloric portion with partial obstruction of the duodenum, and cecal adhesions.

Operation and Result.—The gallbladder was thickened, somewhat enlarged, adherent to the transverse colon, and pulled well over to the right side by adhesions. It contained one large stone. The appendix was surrounded by adhesions. Cholecystectomy and appendectomy were performed.

The convalescence was somewhat prolonged by a mild infection of the operative wound, but relief from symptoms was complete.

CASE 3.—*History.*—S. S., man, aged 34, for three years had complained of a dull gnawing in the pit of the stomach. This was relieved by eating, but returned an hour and a half after food was taken. There was occasional nausea, but there had been no vomiting. There had been a good deal of gaseous eructations. There was no jaundice. The patient had lost about 15 pounds in weight and had become less vigorous and energetic. The family and previous history was unimportant. The typical hunger pain with brief relief on the taking of food was to be especially noticed. Abdominal examination was negative except for tenderness in McBurney's region. The roentgenologic findings indicated adhesions in the regions of the terminal pylorus, interfering with the emptyings of the stomach.

Operation and Result.—The gallbladder was adherent to the stomach and the cystic duct to the tissues around it by fresh adhesions. There were no stones nor ulcers. The appendix was long, thick, and slightly reddened. Cholecystectomy and appendectomy were performed.

The relief from the operation was prompt and complete, and the patient left the hospital entirely cured and eating in normal fashion.

CASE 4.—*History.*—L. M., man, aged 66, for two months had complained of pain in the epigastrium which came on one hour after eating and lasted for two or three hours. The pain was relieved by drinking hot milk. He did not vomit. There had been no tarry stools, but he had lost 20 pounds in two months. Two years before he had a similar attack which lasted one month.

Abdominal examination revealed tenderness and resistance in the epigastrium, beginning under the left costal margin and running to about the middle of the right rectus muscle.

Gastric analysis revealed blood microscopically by the benzidin test. In examination of the fasting contents, 30 c.c. were obtained, with a total acidity of 42. Free hydrochloric acid was 22. In a test meal, 120 c.c. were obtained, with a total acidity of 65, and free hydrochloric acid, 30.

Roentgen-ray examination indicated a growth in the pyloric portion outside the stomach proper, producing pressure on the pylorus, and a diagnosis was made by Dr. Honeij of marked adhesions in that region also involving the hepatic flexure and transverse colon.

Operation and Result.—The gallbladder was densely adherent to the liver, hepatic flexure, transverse colon and duodenum. There were no stones in the gallbladder. The appendix was quite long and covered with adhesions, its tip lightly adherent to the under surface of the liver. Cholecystectomy and appendectomy were performed.

The severe gastric symptoms which before operation had made life miserable were entirely relieved, and the patient left the hospital a normal man.

CASE 5.—*History.*—M. M., woman, aged 49, for seven months had had severe pain in the epigastrium, part of the time localized to this region, part of the time radiating to the back and shoulder. She had vomited occasionally, never any blood. There had been no jaundice. She had lost 20 pounds in three months, and had been greatly troubled by gaseous eructations and by nearly constant nausea. There had been no relation between the pain and the taking of food.

Operation and Result.—At operation a general visceroptosis was found, excluding the kidneys; but the chief lesion consisted in firm adhesions of the gallbladder to the duodenum, of the stomach to the colon, of the parietal peritoneum to the ileum. The stomach and duodenum were carefully explored for ulcers and none found. There were no stones in the gallbladder. The gallbladder and the appendix, possibly previously inflamed, though at present showing no changes, were removed.

The symptoms were entirely relieved by the operation, and the patient left the hospital feeling perfectly well and eating normally.

GAUCHER TYPE OF SPLENOMEGALY

REPORT OF A CASE

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AND

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CHICAGO

Among the numerous conditions that are included under the general term of Banti's disease, there is one group of cases with definite clinical and pathologic characteristics. We refer to that known as the Gaucher type, first described by Gaucher in 1882. Brill and Mandlebaum,[1] in an exhaustive study, say:

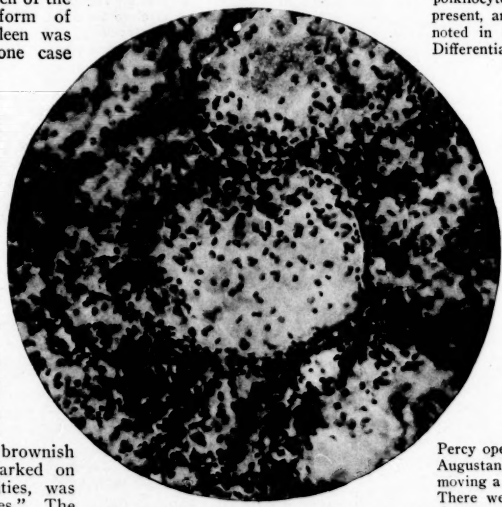
The characteristic features of Gaucher's disease are its incidence in childhood, its frequent presence in other members of the family of the same generation, a progressive increase in the size of the spleen, which often reaches colossal dimensions, followed by a similar huge enlargement of the liver, a characteristic brownish-yellow discoloration of the skin, usually restricted to the face, neck and hands, a peculiar yellowish, wedge-shaped thickening of the conjunctiva, commonly seen on both sides of the cornea, and the prolonged and chronic course of the disease, which does not materially disturb the health of the individual. After the disease has been present for a considerable time, there is a definite tendency to hemorrhages, especially appearing as epistaxis, bleeding from the gums, and ecchymoses in the skin following the slightest trauma. The positive finding in the blood, even in the early stage of the disease, is a definite leukopenia. The erythrocytes, however, show no definite change either in number, form, size or hemoglobin content until the disease has existed for a long time, when an anemia of the chlorotic type makes its appearance. The anemia is rarely pronounced at any stage. The disease is not accompanied by palpable enlargement of the superficial lymph nodes. There is no

1. Brill, N. E., and Mandlebaum, F. S.: Am. J. Med. Sc. **146**:863, 1913.

jaundice, and ascites is exceptional. The disease has none of the characteristics of malignancy, and usually is terminated by some intercurrent affection.

The pathological feature of the disease is the presence in the spleen, liver, lymph nodes and bone marrow of distinctive large cells, with characteristic cytoplasm and small nuclei. The enlargement of the spleen and liver is due to the presence of these cells in enormous number. In well-established cases, all of these organs contain pigment giving the reaction for iron. Whereas the nature and origin of these cells are still moot questions, the histological picture is uniformly characteristic and pertains to no other form of disease.

In 1916, Knox, Wahl and Schmeisser[2] reported two cases, and collected all of the instances recorded to that time, sixteen in number; the oldest patient was 44 years of age; only three of the patients were males. "The onset of the disease is insidious, the symptoms being vague and indefinite. A feeling of weight accompanying the enlargement of the abdomen was usually present." Eleven of the patients had some form of hemorrhages. The spleen was greatly enlarged, in one case weighing 8,100 gm. "Enlargement of the liver was noted in fourteen cases. It was not so marked as that of the spleen and seemed to occur at a somewhat later period. . . . The superficial lymph glands were moderately enlarged in ten instances, and in three additional cases, certain internal groups of lymph glands were enlarged." In one of the cases reported by these authors, the diagnosis was confirmed during life by the examination of an excised lymph node. "A yellowish or brownish discoloration, most marked on the face and extremities, was noted in eleven cases." The importance in diagnosis of the "wedge-shaped thickening of the conjunctiva," mentioned by Brill and Mandlebaum, has not been determined in the opinion of Knox, Wahl and Schmeisser. The blood picture, the familial history and the final termination are as stated by Brill and Mandlebaum. In one case, a white cell count of 500 was noted. Splenectomy was performed in nine cases. "Three of the patients died shortly after the operation. Only one was reported living after sixteen months. In most of these the sense of weight in the abdomen had been relieved, but there is no evidence that the further progress of the disease was arrested."



Section of spleen, × 200, in Gaucher type of splenomegaly, with large irregular spaces, representing the greatly dilated venous sinuses, filled with the peculiar large cells and nuclei relatively small, sometimes single and sometimes multiple.

REPORT OF CASE

P. W., man, aged 46 years, Polish, an insurance solicitor, unmarried, who first entered Cook County Hospital in November, 1915, had known since childhood of a tumor in the left side of the abdomen. Attention was first directed to this when he was 9 years of age. The tumor gradually increased in size, though the patient's general health was always good. The tumor produced neither pain nor tenderness, but at the time of entrance to the hospital, the patient was suffering from difficulty of respiration, which was sufficiently severe to prevent the discharge of his daily work.

The patient was very emaciated, and yellowish looking. Examination was generally negative except so far as it concerned the emaciation, the abdominal findings and the blood. There was no general adenopathy. The heart was normal except for a soft systolic blowing murmur, heard at the base. The abdominal tumor was determined to be the spleen. It extended to within 5 cm. of the symphysis pubis, and beyond the median line to 5 cm. to the right of the umbilicus. It was hard, smooth and not tender. The liver was palpable 10 cm. below the costal arch. The lower extremities were moderately swollen. Blood examination revealed: hemoglobin, 35 per cent.; erythrocytes, 2,240,000; leukocytes 3,200. A second count was practically the same, the leukocytes, however, being only 2,100. There was no increased fragility of the red cells; poikilocytes and microcytes were present, and three normoblasts were noted in one of two examinations. Differential white count revealed: small mononuclears, 17; large mononuclears, 12; polymorphonuclears, 68; eosinophils, 1; transitionals, 1; myelocytes, 1.

There was no history of previous illness, other than this one. Venereal disease was denied. Family history was negative. Coffee and tobacco were used to excess. Alcohol was used in moderation. The Wassermann test was negative. The diagnosis of Banti's disease was made, and the case was regarded as probably of the Gaucher type. Operation was suggested but refused, and the patient left the hospital.

In May, 1916, Dr. N. M. Percy operated on the patient at the Augustana Hospital, Chicago, removing a spleen 11 pounds in weight. There were firm adhesions between the upper pole and under surface of the diaphragm. The liver showed a fatty and atrophic cirrhosis. Transfusion was done, 600 c.c. each time, before the operation and on the day following. On the day after the operation the blood count revealed: hemoglobin, 70 per cent.; erythrocytes, 6,150,000; leukocytes, 2,900; differential white count: polymorphonuclears, 86, no abnormal red cells. Four days later, the hemoglobin was 70 per cent.; erythrocytes, 5,350,000; leukocytes, 1,920. On section the spleen showed large irregular alveolar spaces, representing the greatly dilated venous sinuses, filled with the peculiar large cells with nuclei relatively small, sometimes single, sometimes multiple, characteristic of the Gaucher type of splenomegaly. An iron-containing pigment was found between the connective tissue fibers of the trabeculae. The patient made an uneventful recovery and left the hospital in three weeks.

Jan. 4, 1918, the patient again entered Cook County Hospital, and stated that for six months he had been losing weight. He had been having nocturnal headaches; swelling and soreness of the gums had been present for six weeks; bleeding from the gums began as an oozing two weeks before admission and had grown steadily worse. Some of the teeth were

2. Knox, Wahl and Schmeisser: Bull. Johns Hopkins Hosp. **27**:1, 1916.

loosened and the breath was fetid. The history was suggestive of insufficient nourishment. The blood test revealed: hemoglobin, 85 per cent.; erythrocytes, 3,950,000; leukocytes, 9,000; differential white count: small mononuclears, 28; large mononuclears, 13; polymorphonuclears, 54; eosinophils, 2; transitionals, 3. Erythrocytes were normal in appearance. On an antiscorbutic diet, the patient improved rapidly and was discharged, March 3, 1918, feeling well. All of the abnormal physical findings recorded at the time of entrance had disappeared. Repeated white counts made during his stay in the hospital revealed from 8,600 to 9,200 leukocytes. On the day of his discharge, the blood test revealed: hemoglobin, 90 per cent.; erythrocytes, 4,750,000; leukocytes, 8,600; differential white count: small mononuclears, 27; large mononuclears, 11; polymorphonuclears, 61; transitionals, 1.

SUMMARY

1. This case presented the clinical features regarded as characteristic of Gaucher's type of splenomegaly.
2. No case in which the patient was as old as this man has as yet been reported.
3. The patient was seen twenty-one months after splenectomy (the longest time elapsing since operation yet reported), and the blood findings were approximately normal.
4. There was no diminution in the size of the liver as a result of the operation.

A CASE OF CONGENITAL RADIO-ULNAR SYNOSTEOSIS

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Congenital synosteosis of the upper ends of the radius and ulna is a rather rare condition. In this deformity there is an osseous fusion of the upper ends

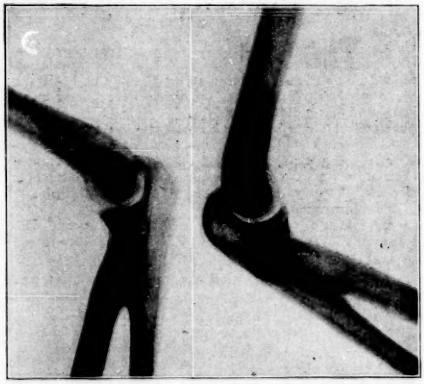

Fig. 1.—Synosteosis: lateral view.

of these bones. Feidt[1] has reported two cases occurring in mother and daughter, and Kurlander[2] has reported a case of unilateral radio-ulnar synosteosis in an 8-year-old boy who gave no hereditary history. These are the only cases reported in American literature, and Feidt has collected about forty instances in the entire literature. Most of the cases showed a strong tendency to follow certain laws of heredity. This was present in Feidt's cases, mother and daughter being

Fig. 2.—Synosteosis: anteroposterior view.

affected, with a history of the condition in the grandfather.

In this deformity the function of supination of the forearm is lost. There is no satisfactory treatment. In a case reported by Dawson,[3] the patient was operated on five times with fairly good results, with a restoration of the function of supination.

The case that I report is identical in its features with those reported by Feidt. There was no hereditary tendency discovered in my case.

REPORT OF CASE

A man, aged 22, colored, a native of Louisiana, seen at the Embarkation Hospital, Newport News, Va., had been a hotel porter previous to his induction into military service. He had never been able to rotate his forearms. Both hands were held in semipronation. Flexion at the elbows was normal; extension was not quite maximal. The wrist movements were normal. There was inability to supinate the forearms, any attempt at supination bringing into action the muscles of the arm and shoulder. Incidentally this patient presented a chronic arthritis of the left knee with a positive Wassermann reaction. The roentgenograms of both forearms, taken by Lieut. Ralph H. Boice, show intimate bony union of the upper 6 centimeters of the radius and ulna, both forearms showing identical involvement. The patient was discharged from the Army.

1. Feidt: Surg., Gynec. & Obst. **24**:696-700 (June) 1917.
2. Kurlander: Surg., Gynec. & Obst. **25**:472, 1917.
3. Dawson: Brit. M. J. **2**:833, 1912.

Indications for Transfusion.—The most reliable index of the need for transfusion in those suffering from acute anemia is the persistently lowered systolic blood pressure. This is true whether there has been actual hemorrhage or whether there exists the capillary stasis (potential hemorrhage or anemia) peculiar to shock.—*Review of War Surgery and Medicine.*

Clinical Notes, Suggestions, and New Instruments

A CASE OF ACUTE METHYL SALICYLATE POISONING

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A search of the literature reveals that cases of poisoning by methyl salicylate are very rare. Nerthney[1] reported a fatal case of poisoning. Juvet[2] described a case resulting fatally after the taking of one-half ounce of oil of wintergreen, and Gallaher[3] reported a case with recovery following ingestion of the same amount of oil of wintergreen. Pinkham[4] reported a case in which the patient died in fifteen hours after taking 1 ounce of oil of wintergreen as an abortifacient. It produced sweating, abdominal pain, purging, frequent and painful urination, convulsions, loss of sight and hearing, and death in coma. Necropsy disclosed the presence of gastritis and congestion of the kidneys. Hamilton[5] reported a case with recovery following ingestion of one-half ounce of the oil. The patient was dizzy, drowsy, delirious, went into coma, and developed a hemiparesis and salivation and a permanent disturbance of vision. Mann and Brend[6] report a case in which 3 drams of the oil killed a boy, aged 3 years, with convulsions as the most marked symptoms.

REPORT OF CASE

Miss B., aged 40, schoolteacher, at 9:30 p. m., March 28, 1918, took 1 ounce of oil of wintergreen, thinking that it was liquid petrolatum. Twenty minutes later she went to bed. Immediately after lying down she experienced a burning sensation in the abdomen and extreme nausea. She vomited, and the vomitus consisted of oil of wintergreen. Immediately following the vomiting diarrhea occurred, and the stools burned in passage. She washed her stomach by drinking water and took a glass of milk. The vomiting and diarrhea continued.

About half an hour after she had taken the oil, tinnitus aurium began. She felt that she needed air, and went to the front porch. She was examined two and one-half hours after taking the oil. The pulse was 120 and weak. There was a marked odor of oil of wintergreen throughout the house.

Castor oil, 2 ounces, liquid petrolatum, 1 ounce, and olive oil, 1 ounce, were given every second hour. Proctocysis was done with glucose, 10 per cent., and sodium bicarbonate, 5 per cent.

The following day the pulse was 110 and weak. The systolic blood pressure was 100, the diastolic not obtainable. The urine, 20 ounces, contained a heavy ring of albumin and a few hyaline and granular casts, and gave a strong salicylate reaction with ferric chlorid. The patient had extreme nausea, and vomited repeatedly. She had a sensation of things being far away. The tinnitus still persisted. She was given 1 pint of salt solution by hypodermoclysis in addition to the previous treatment instituted.

The third day the pulse was 80 and weak. The extreme nausea and vomiting continued. The temperature and respiration were normal.

The fourth day the temperature was 101.5, the pulse 80 and the systolic blood pressure 120. The patient was restless, excited and very nervous. The nausea and vomiting continued. Twelve ounces of blood were withdrawn and 1 pint of salt solution given intravenously. The treatment was continued with the addition of cocain, one-sixth grain by mouth, before food, and an alkaline drink was given by mouth.

The fifth day the temperature was 100 and the pulse 80. Nausea and vomiting were still present. A bad taste was present in the mouth. The urine volume was 900 c.c., with one part of albumin to the liter. Acetone and diacetic acid were present in large amounts. Salicylate was present in the urine.

The sixth day the nausea and vomiting had stopped. The temperature was 99.4 and the pulse 80. All food tasted sweet. The urine volume was 520 c.c. with one-fourth part albumin to the liter. Acetone and diacetic acid were present in large quantities. Salicylate was absent.

The seventh day the temperature was normal and the patient's condition normal except for fatigue and a sensation of her head falling into space. She had to wash her mouth constantly to keep soap bubbles out that would form. The urine showed 1.3 parts of albumin to the liter, and gave positive reactions for acetone and diacetic acid. Salicylate was absent. From this time on the patient's condition was normal. The acetone and diacetic acid disappeared on the twelfth day of her illness and the albumin on the seventeenth day.

Jenkins Arcade.

1. Nerthney, quoted by Sollmann, Torald: Manual of Pharmacology, 1917, p. 504.
2. Juvet: Med. Gaz. **8**: 380, 1868.
3. Gallaher: Philadelphia Med. Exam. **8**: 47, 1852.
4. Pinkham: Tr. Massachusetts Med. Leg. Soc. **1**: 379, 1887; Boston M. & S. J. **117**: 549, 1888.
5. Hamilton: New York M. J. **21**: 602, 1875.
6. Mann and Brend: Forensic Medicine and Toxicology, 1914, p. 685.

TREATMENT OF A SEVERE CASE OF EPIDEMIC MENINGITIS BY COMBINED INTRAVENOUS AND INTRASPINAL INJECTIONS OF ANTIMENINGOCOCCUS SERUM

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We report this case because of the rapidity with which the symptoms cleared up under the combined method of treatment:

Harry T., aged 18, entered the Cook County Hospital, Aug. 25, 1918, in a state of delirium, with the history that, forty-eight hours previously, he had developed a severe headache followed by projectile vomiting and fever, and had been irrational for twenty-four hours.

Physical examination revealed marked rigidity of the neck with retraction of the head, opisthotonos, eyes deviating to the right, all reflexes exaggerated, positive Kernig and Brudzinski signs, rectal temperature 102.8, and pulse, 90. He was very restless and delirious, and it required several assistants plus partial ether anesthesia to do a spinal puncture. The fluid, 30 c.c. of which was withdrawn, was highly turbid, under increased pressure, with a cell count of 21,200 per cubic millimeter. Smears showed numerous intracellular and extracellular gram-negative diplococci. Ross-Jones and Nonne globulin tests were positive. Thirty c.c. of serum were given intraspinally.

On the following day the patient's condition showed no improvement. Forty-five c.c. of spinal fluid were withdrawn. The fluid was still very turbid with a cell count of 16,400 per cubic millimeter. Thirty c.c. of serum were given intraspinally and 45 c.c. intravenously.

Twenty-four hours later the temperature had fallen to 100 and the general condition was somewhat improved. Thirty-five c.c. of spinal fluid, less turbid than before, were obtained by puncture, and the cell count was now 1,000 per cubic millimeter. Twenty c.c. of serum were given intraspinally and 70 c.c. intravenously.

On the fourth day his condition was much improved. The spinal fluid (30 c.c. were withdrawn) was only faintly turbid with slight increase of pressure, and cell count of 450 per cubic millimeter. Fifteen c.c. of serum were given intraspinally.

On the following day—the sixth day from onset—spinal puncture revealed a clear fluid with a cell count of only 60 per cubic millimeter. Smears showed no organisms.

No further injections of serum were made, and on September 7, fifteen days after entering the hospital, the patient was discharged with complete recovery.

The total amount of serum given was 115 c.c. intravenously and 95 c.c. intraspinally.

There was no reaction following any of the intravenous injections of serum. This may be attributed to the fact that the patient had already been sensitized by the first intraspinal injection, which was given twenty-four hours before, the administration of the serum by the intravenous method, and the fact that the first few cubic centimeters were injected very slowly.

Another point to be emphasized is the great need of judgment in determining the amount of serum to give intraspinally. We believe it imperative to drain the spinal canal as frequently as the case demands, but not to give serum on each occasion a puncture is made. Through irritation of the meninges by superfluous serum a turbid fluid with high cell count may result. We feel there is no doubt that in many instances the clinical symptoms of epidemic meningitis are prolonged by the continual injection of serum intraspinally far in excess of the amount required to obtain a cure.

OBSCURE INFLAMMATIONS OF THE CAUDA EQUINA: REPORT OF CASE AND OPERATION

CECIL E. REYNOLDS, M.D., D.P.H., LOS ANGELES

In 1914, Kennedy, Elsberg and Lambert[1] reported five cases of a peculiar undescribed disease of the nerves of the cauda equina. In this series they demonstrated not only the great benefit to be derived from operation, but also much of the pathology of the disease.

As I have had occasion to operate recently in a case that closely resembled Case 4 in the foregoing series, an account of it may add something to the study of the subject.

REPORT OF CASE

History.—A. G. R., man, aged 48, until five years before I saw him lived in Mexico. His father and sister died of tuberculosis. He had never had any serious illness except "stomach trouble" five years before, which lasted about a month, and the backache which preceded his present illness. This backache appeared eight years before. The first attack lasted two months, but on removing from Guadalajara to Vera Cruz he was immune for a year. At the end of that time he came to Los Angeles, and the backache returned in attacks every month until October, 1917, when the pain became continuous and was now associated with a sensation of numbness over the front of the right thigh. In March, 1918, after one remission, the numbness extended to the right ankle and sole of the foot, and there was a painful weakness of the arch when walking. March 10, he noticed numbness on the inner side of the left shin. Until March 10 he had been able to work and walk without a stick, but, after a series of osteopathic manipulations, which at times were very painful, he developed a sensation of a tight band around both Poupart's ligaments, and also around the knee and ankle on the right side. He used a stick until April 1, when he was compelled to stop work, and on May 1 collapsed entirely and had to be carried.

Examination.—Dr. Alfred Fellows saw him, May 5, and called me in, May 6. The patient was pale, thin, sallow and nervous in appearance. He was seated in an easy chair, but could not raise either foot from the ground. He could raise the right heel slightly. There was an almost complete flaccid paralysis of both lower limbs. Marked foot-drop had evidently existed for quite a while on the right side, as complete passive dorsiflexion was impossible beyond a right angle. There was complete absence of both knee jerks and also of both plantar reflexes. The feet were swollen, purplish and cold, especially the right foot. There was considerable atrophy of the muscles of both legs and both thighs. There was anesthesia over the dorsum of the right ankle and right sole, but elsewhere very little alteration of sensation except a marked saddle anesthesia (above) on both sides of the anus and inner aspects of the buttocks and to a lesser extent of the scrotum. There was no dissociation. Areas of hyperesthesia were noted on the right leg and foot. The abdominal reflexes were present; the cremasteric reflexes were slight. The bulbocavernosus reflex was absent. Above the waist line there were no special physical signs.

At this examination the patient complained of severe and continuous pains in the lumbar region and down the right leg (the outer side especially) and less severe in the left leg. Also there had been difficulty of micturition for the past two weeks, and constipation for years. Cramps in the legs and "electric shocks" were also complained of in the legs. He denied syphilis. The Wassermann test was negative, both as to blood and spinal fluid.

May 8, there was complete retention of urine.

Operation and Result.—May 9, operation was performed in the California Hospital. The roentgenograms being quite negative, I removed the arches of the eleventh and twelfth dorsal and first and second lumbar vertebrae. The epidural fat was very scant. On exposure, the dura mater was seen to be dark and swollen and to have spontaneously ruptured. A vertical slit was present through which the congested cauda endeavored to extrude. A light tampon was placed above the swelling between the dura and the bone, and the dura freely opened. The dura was smooth on its inner aspect.

The following condition was found: The posterior roots on the left side appeared nearly normal, but those of the right side were inextricably imbedded in a purplish mass of what seemed to be inflammatory material, molding itself into a smooth tumor-like substance closely applied to the lateral wall of the spinal canal as one traced it forward as far as possible without causing further trauma to the nerve tissues. It extended all the way around to the front of the right cauda, and I have no doubt from the symptoms that it also involved the left anterior roots; but it seemed so probable that an attempt to unravel the adhesions in that confused mass might forever damage the bladder mechanism, and thus abolish the chances of natural resolution that I decided to search no farther for the boundaries of the mass or even for the conus above it, and contented myself with thorough irrigation with mercuric chlorid 1:1,000, and as it was impossible to close the dura, I stitched the muscles carefully together over the cauda after removing the tampon. Very little cerebrospinal fluid escaped. The dura was left wide open to insure full decompression. A little fluid escaped next day, but none thereafter.

Immediate relief from pain followed the operation and has continued to the present. The bladder acted normally for a week after operation, when the patient had an attack of acute retention, and required catheterization for two weeks, since which time he has passed urine normally. The muscular power has steadily increased so that now he can walk well with one stick, and up and down stairs. He contemplates returning to work next month. Slight saddle anesthesia is still present. Both knee jerks are present, the left more than the right. The left plantar reflex is present, the right absent. The left leg is carried normally in walking, but the right is rather high-stepping. Right foot-drop is still present. The left ankle movements are strong in all directions. Both thighs can be powerfully flexed on the abdomen. The heel and toe pointing test is good, but better on the left. Sensation everywhere is normal, even on the right foot, excepting only the slight saddle hypesthesia and a very slight band sensation in the region of the right knee. Swelling and blueness of the feet have disappeared. Sexual desire and the power of erection have returned. Both legs are considerably more muscular, and the patient has gained in weight and improved in color. His tongue has still the thick coat of gray fur that it has carried for years. The dorsum of the right foot is now slightly hyperesthetic. The bulbocavernosus reflex is absent. Lasegue's sign is positive on both sides, but more on the right.

Medicinal Treatment.—Since the operation, hexamethylenamin and potassium iodid were given on alternate days for the first seven weeks, after which the potassium iodid was alternated with an iron, arsenic and strychnin mixture.

1. Kennedy, Foster; Elsberg, C. A., and Lambert, C. L.: Am. J. M. Sc. **147**: 645, 1914.

Securing a Workable Amount of Function in a Disabled Limb.—It is easy to overlook the importance of training a limb to perform its function more or less regardless of anatomic perfection. It is easy to overlook the fact that, if one joint is defective, other associated joints will make good the deficiency. An illustration of an actual case may be of service. A man with both forearm bones broken has cross-union interfering with pronation and supination. Now the greatest and most powerful movements of pronation and supination take place by means of internal and external rotation of the shoulder joint; therefore, proceed to cultivate that substitute.—Col. H. E. Deane, Gymnastic Treatment for Joint and Muscle Disabilities.

MISPLACED KIDNEY: REPORT OF A CASE

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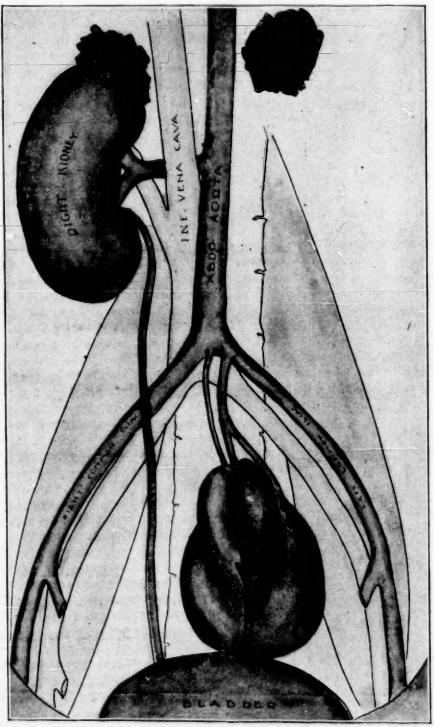
In a necropsy on the body of G. W., a well developed adult male negro, height 5 feet, 11 inches, weight, 170 pounds, who had died of lobar pneumonia, an anomaly in the location, shape and blood supply of the left kidney was observed. The kidney could not be found by feeling in the left renal fossa. After careful dissection the left suprarenal gland, somewhat larger than normal, was located in the usual position. The right kidney and suprarenal gland were in the normal position and had a normal blood supply. The gastrointestinal tract was removed and the left kidney found inside



Location, shape and blood supply (diagrammatic) of misplaced kidney.

the bony pelvis slightly to the left side. It was retroperitoneal, as would be expected. The kidney was somewhat pear-shaped, with the small end pointing upward. Its blood supply consisted of a main artery branching from the left common iliac and a smaller branch from the bifurcation of the abdominal aorta. Both arteries entered the anterior surface near the upper end. The veins, two in number, left the kidney on the posterior surface at the upper and lower ends, respectively, and emptied into the left iliac vein. The ureter, which was 9 cm. in length, left the anterior surface of the kidney and passed behind the peritoneum into the bladder in the usual location. The bladder, when distended, partially covered the kidney. The two kidneys, the ureters, the aorta and the bladder were dissected out and removed together. The diagrammatic drawing illustrates the condition clearly.

Military Medicine and Surgery

INFLUENZA AS SEEN AT THE PUGET SOUND NAVY YARD

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NAVY YARD, PUGET SOUND, WASH.

In the present state of our knowledge of this disease, one is tempted to ask, "When is influenza not influenza, and why?" Are we dealing with a definite disease caused by a specific micro-organism? If so, is that organism the influenza bacillus? Is it a hemolytic streptococcus? Is it an aberrant form of the pneumococcus (streptopneumococcus)? Is it a combination of two or more of these, and if so, is infection with the different organisms simultaneous or does the streptococcus follow the influenza bacillus as a secondary invader? May still other organisms than these cause the disease? Are there two or more separate diseases that are being confused both clinically and bacteriologically, and may they coexist in the same patient? May a group of human beings (camp, city or community) be attacked by this epidemic disease and some of them suffer from one infecting organism and some from another and still others from combinations? Are the pathogenic streptococci really a large family that can change form and affinity (for human tissues) and run up and down the scale of virulence ad lib.?

One of us (Lloyd) observed in 1915, 1916 and 1917 that hemolytic streptococci, fatal to rabbits in pure culture (intravenously), could usually be found in certain types of influenza. In one instance he obtained such an organism from the blood (before death) of a patient who had severe cholecystitis, for which operation was performed. The patient recovered, returned home, and became suddenly ill with fever, collapse, signs of pulmonary edema, and intense jaundice. The patient died twenty-one days after operation, and forty-eight hours after the last illness began. It is interesting to note in this connection that in some of the fatal cases of influenza at this station there was marked jaundice.

Nickson also found hemolytic streptococci in the blood of two persons suffering from influenza (bronchopneumonia) previous to his assignment to this station.

Based on previous observations, Lloyd suggested that we would probably find a hemolytic streptococcus the cause of this disease should influenza present itself among our personnel in epidemic form, and also expressed the opinion that a vaccine made from such an organism might be useful as a prophylactic. All of us felt that the influenza bacillus should be added if found. To Drs. Hitchcock and Nickson were assigned the tasks of making the pathologic and bac-

teriologic studies, following out a more or less definite plan on which all were agreed.

In boldly announcing the fact that this work was undertaken with what might be termed "preconceived ideas" on the part of at least two of us, it might be argued that we were looking for a streptococcus infection. We were; but we were also looking for anything else we could find. Nothing else was found in the blood, nor did we find anything else in the tissues at the necropsies; and a reasonable, though not a persistent, effort was made to obtain the influenza bacillus from the sputum without success. Never did blood cultures show anything but diplococcal or streptococcal forms; only once did tissue cultures show anything else, and that was when they were contaminated by the colon bacillus. Lieutenant Henry reports that in a few cases studied by him at the Seattle training camp he obtained only diplococcal forms, which he regards as pneumococci.

CLINICAL DATA

The onset is sudden. The patient usually has a chill or chilly sensations. There may be headache, and pain in the back; and there is a tendency for the knees to give way. There may be nosebleed. The temperature rises rapidly and may reach 104 or 105. In two fatal cases a temperature of 108 was recorded. The pulse is from 100 to 120, and higher in severe cases. Lung symptoms soon make their appearance with pain over the lungs, usually the lower border. Constipation is the rule, and the patient frequently complains of pain over the upper abdomen.

Examination of the lungs in moderately severe cases shows fine and coarse râles and areas of dulness. The liver and spleen are enlarged and tender. The respiratory rate averages from 28 to 30 and, though higher in very severe cases, there is not the rapid rate seen in ordinary lobar pneumonia. The cough is usually loose, and an abundant frothy, greenish fluid, pink with blood, is brought up. The contrast between this material and that usually seen in lobar pneumonia is quite marked. In severe and fatal cases delirium is present, the facial expression is anxious, and there is often marked cyanosis. In many fatal cases the respiration continued for some time after the heart had stopped.

CLINICAL PATHOLOGY AND PATHOLOGIC ANATOMY

Of sixty-two urinary examinations made fairly early, twenty-six showed albumin and hyaline and granular casts; seven showed albumin only, and twenty-nine were normal.

Of seventy-five blood examinations, twenty-five gave a leukocyte count of 5,000 or less, thirty-four gave a count of between 5,000 and 10,000 and sixteen a count of more than 10,000. Several cases gave a count of from 30,000 to 56,000; but in these cases there was some complication, usually cerebrospinal. In convalescent cases the leukocyte count tends to rise.

Necropsies were performed in thirty-nine cases, only six of which showed varying degrees of consolidation, sometimes complete for some portion of the lung. There was marked engorgement of the lung tissue with a large amount of bloody fluid exuding from the cut surface; not infrequently the cut surface of certain areas showed small amounts of pus in the smaller bronchi. Pleural effusions, varying in amount, usually right sided, serofibrinous, and occasionally purulent, were fairly constant. The heart was slightly enlarged and the right auricle dilated. The kidneys were enlarged and congested, an edematous condition frequently being found about the suprarenals. The spleen was large and soft, the cut surface exuding bloody fluid.

BACTERIOLOGIC FINDINGS

Sputum examinations were made in forty-nine early cases and twenty-five late cases with these results: Smears were made from selected portions. Gram positive cocci were found in pairs and chains, streptococci predominating throughout all examinations. Portions of sputum washed, plated on blood agar and incubated for twenty-four hours showed large numbers of hemolyzing colonies composed (microscopically) of chain-forming cocci (sometimes paired). Subcultures of these in bouillon, with one exception, showed chain formations. Two rabbits were injected intravenously with small amounts of washed sputum, suspended in broth. These animals died after thirty-six and seventy-two hours. Pure cultures of hemolytic chain-forming

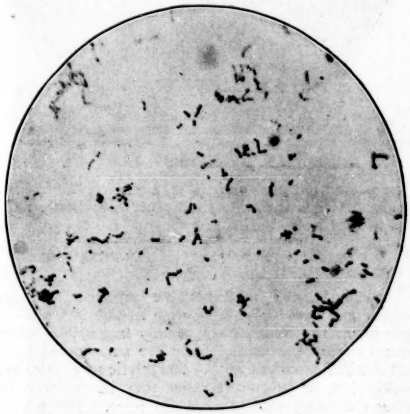

Fig. 1.—Smear direct from pus from joint of rabbit inoculated from washed sputum, × 1,000, showing streptococci.

cocci were obtained from the heart's blood and from the pus from the joints, in both animals.[1]

Cultures made postmortem in twenty cases gave hemolytic streptococci from the heart's blood 17 times; from the pericardium, 12 times; from the liver, 13 times; lung, 14 times; spleen, 5 times; kidney, 17 times; bile, twice. In only one case the cultures were entirely negative. It is believed that this was due to an error in technic. In one case, cultures were contaminated with the colon bacillus.

A total of fifty-two attempts at blood culture on living patients gave twenty-four positive results, all streptococci except one, which gave only a diplococcus, which would not chain. This patient had the physical signs of lobar pneumonia and was clinically fairly typical of that disease; but five members of his family had "influenza" at the same time that he had "pneumonia," all being in the emergency hospital together (civilians). Two patients yielded blood cultures

1. Since this was written, one rabbit was killed three weeks after inoculation. It was greatly emaciated; pus from joints was somewhat caseated but showed streptococci.

eighteen hours after onset, eight within three days and one after three weeks' illness.

The technic of blood cultures was as follows: Three c.c. of blood were drawn under aseptic precautions and placed in an Erlenmeyer flask containing 30 c.c. of

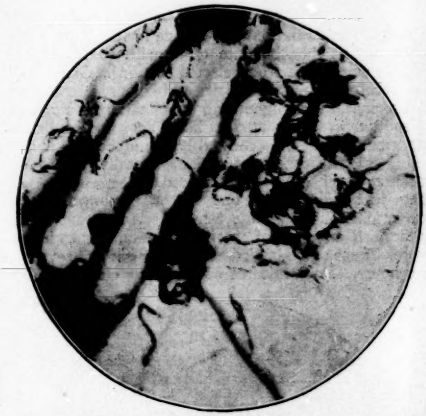

Fig. 2.—Marked chain formation in bouillon culture (twenty-four hours) made direct from human blood from patient who recovered; × 1,000.

1 per cent. glucose broth plus 1 per cent. of sheep serum. After incubating for twenty-four hours there was usually an abundant growth.

CULTURAL AND STAINING CHARACTERISTICS, AND REACTIONS

On tubed solid mediums the organism we are describing grows in small, discrete colonies. On blood agar plates the colonies are usually larger, and when recently from the human body are surrounded by a well marked hemolytic zone. Hemolytic properties are quickly lost in subcultures, but may be restored by passage through rabbits or white mice. The microscopic appearance in smears from human and animal tissues is that of a coccus, occurring in short or long chains; once a diplococcus only was obtained from a blood culture. In the mouse the organism may show as mixed diplococci and streptococci. On agar the growth may also show mixed diplococci and streptococci, or there may be chains of diplococci, and after a few generations bouillon cultures may show diplococci predominating and even groups suggesting staphylococci, though when grown in bouillon direct from human and animal tissues, chain formation is the rule, the units in the chains varying in number from four to twenty. Some strains retained their chain-forming properties much more persistently than others. The size of the organisms varied from 0.3 to 1 micron; they were usually true spheres, but occasionally were somewhat elongated. The development of the organism in broth produces diffuse cloudiness accompanied by varying amounts of sediment. Acid was produced in glucose and lactose 4.6 and 2.1 degrees respectively (phenolphthalein). No gas was produced. The organism is gram-positive and stains readily with the ordinary anilin dyes. A capsule was demonstrated in only one strain from the peritoneal cavity of a mouse. In addition to the hemolytic property noted on blood agar plates, it was found that when 0.5 c.c. of a twenty-four-hour broth culture was mixed with the same amount of a 5 per cent. suspension of red blood cells (rabbit) in physiologic sodium chlorid solution and incubated at 37 C. for one hour, the cells were completely hemolyzed. This was also true of a strain that grew as a diplococcus.

BILE SOLUBILITY

A twenty-four-hour broth culture was filtered through gauze and cotton to remove sediment and large clumps. The filtrate was then centrifuged in Hopkins tubes, the liquid pipetted off and just enough salt solution added to the precipitated organisms to make a distinctly cloudy suspension. Two-tenths c.c. of fresh sterile ox bile was added to 1 c.c. of this suspension and incubated at 37 C. for one hour. Solution of the organisms did not occur. It will be recalled that the organism was obtained direct from the bile at two necropsies.

AGGLUTINATION AND PRECIPITIN REACTIONS

The organism did not agglutinate in Types I, II and III antipneumococcic serum nor in serum from convalescent patients.

A precipitin reaction was obtained in a 1:25 dilution in Type I serum and in a 1:50 dilution in Type III serum. Similar reactions were thus obtained in serums of persons ill of the disease: 1:25, one; 1:50, two; 1:800, one. No others were tried.

PATHOGENICITY FOR MICE AND RABBITS

Injections of 1 c.c. of a twenty-four-hour broth culture into the ear veins of rabbits invariably killed the animals in from eighteen to seventy-two hours. A marked and constant lesion in these animals was a

Fig. 3.—Marked chain formation in subculture from bouillon on blood agar plate; × 1,200.

purulent arthritis affecting the larger joints particularly the midjoints of the limbs (corresponding to the elbows and knees). The organism could be demonstrated in great numbers in the tissues and particularly in the pus from the joints, always in chains. Five-tenths c.c. of a twenty-four-hour broth culture invaria-

bly proved fatal when injected intraperitoneally into white mice, death occurring in from twelve to twenty-four hours. Smears from the peritoneal fluid showed usually chains, occasionally pairs only, and sometimes both. Cultures made from this fluid, in bouillon, rarely failed to show marked chain formation, even though smears from the fluid showed only diplococci.

TECHNIC OF PREPARATION OF VACCINE

(*a*) Mixed virulent strains of hemolytic streptococci obtained as related are grown for twenty-four hours in 1 per cent. glucose broth plus 1 per cent. sheep serum.

(*b*) At the end of twenty-four hours the supernatant liquid is poured off from the sediment.

(*c*) The organisms from the supernatant fluid are thrown down in a centrifuge.

(*d*) The sediment left in the culture flasks is filtered through gauze and cotton and centrifuged.

(*e*) The two portions of solid micro-organisms are mixed, enough 0.8 per cent. salt solution plus 0.25 per cent. phenol being added to make a heavy suspension. Care should be taken not to add too much salt solution at this stage.

(*f*) The suspension is placed in a sterile bottle with beads and it is shaken to break the clumps.

(*g*) It is filtered again through gauze and cotton.

(*h*) It is filtered again through an alendem filter crucible at 15 pounds pressure; this does not remove the organisms.

(*i*) A small quantity of the filtrate is taken as it comes from the alendem crucible, and by means of a Hopkins tube the number of organisms per cubic centimeter is estimated.

(*j*) Salt solution (plus phenol) is added to make a dilution of 250 million organisms per cubic centimeter.

(*k*) This is tubed, capped and immersed in a water bath for one hour at 56 C.

(*l*) Each tube is tested by planting 3 or 4 drops on blood agar and incubating for twenty-four hours.

The dose used here is 0.25, 0.5 and 1 c.c., given at forty-eight-hour intervals.

INCIDENCE IN VACCINATED AND UNVACCINATED PERSONNEL

Influenza was introduced at the Puget Sound Navy Yard by a draft of men (987 in number) from Philadelphia, many of whom arrived ill or came down within a few hours after reaching this station. A tabulated statement of cases and deaths in the different units is given herewith.

It is fair to say that no unit was divided into two parts for the purpose of running experimental subjects and controls side by side. Circumstances were such that this could not well be done. It is also fair to say that in our largest unit (seamen's barracks) many cases had already occurred before vaccination could be done; we do not know how many. This is also true of the Philadelphia unit. It is not true of the rest of the command.

Conditions of exposure were not materially different in the different units. Conditions of housing differed in that some men were in barracks and some in tents; but this seemed to make no difference with regard to incidence. All of the marines were in barracks, rather closely quartered. All of the Seattle training camp men were in tents, two men to a tent (8 by 10).

The following facts stand out prominently:

Of 4,212 men who were vaccinated, not one man died. Among 111 Filipinos isolated and vaccinated early and later exposed, there occurred only two cases, both the patients recovered. Among 361 marines vaccinated early with no attempt to control exposure,

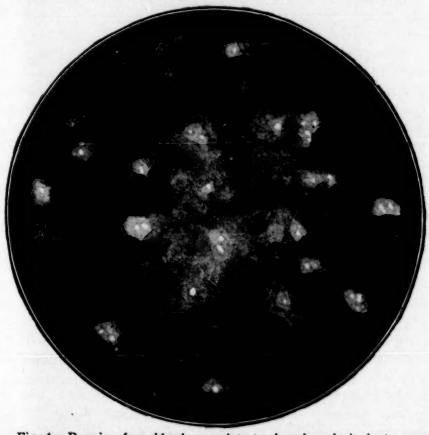

Fig. 4.—Drawing from blood agar plate to show hemolysis (not a very satisfactory picture of the plate).

there occurred two cases, both patients coming down after the first injection; both recovered. Among sixty-two marines at the ammunition depot who were vaccinated early, there occurred three cases; two after the first injection and one after the third; there were

INCIDENCE AND FATALITY IN VACCINATED AND UNVACCINATED PERSONNEL

	Complement		Cases		Per Cent. Attacked		Deaths		Case Fatality Percentage	
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
Philadelphia Unit	131	855	37*	168	28.2	19.6	0	21	0	12.5
Seattle Training Camp No. 1	.....	4,159	..	813	....	19.5	..	33	..	4+
Seattle Training Camp No. 2	662	.....	11	...	1.60	....	0	..	0	
Seamen's Barracks, Puget Sound	2,800	3,472	57†	428	2.03	12.3	0	42	0	9.8
Marines, Puget Sound Navy Yard and Ammunition Depot	425	.....	5	...	1.2	....	0	..	0	
Filipino Unit	111	.....	2	...	....	1.8	0	..	0	
Aviation Unit	83	.....	32‡	...	38.5	....	0	..	0	

* Twenty-six of the thirty-seven vaccinated came down before vaccination was completed.
† Fifty-five of the fifty-seven came down after one injection and did not complete the process.
‡ Thirty-one of the thirty-two came down after the first injection.

no deaths. Among 662 bluejackets at the Seattle training camp, three men developed the disease after the first injection, one after the second injection and seven after the third; there were no deaths. Among eighty-three of the Aviation Corps there occurred thirty-two cases, thirty-one of the patients coming down within a few hours after the first injection and

one after the third injection; there were no deaths. Altogether there were 1,279 men who were vaccinated either before exposure or about the time they were exposed, and of these ninety-four developed the disease before vaccination was completed and eleven afterward. All recovered. Some of the cases in the vaccinated were fairly severe and from the blood of one of these patients a streptococcus was recovered.

The period of observation was from September 17 to Oct. 21, 1918. Up to November 3 there had occurred but forty additional cases at the Seattle training camp and sixteen at the Puget Sound Navy Yard, facts which seem to indicate that the epidemic was practically over at the time these data were obtained. There have been several deaths since October 21, but so far none among those who were vaccinated (November 9).

CONCLUSIONS

We believe that the disease called influenza at the Puget Sound Navy Yard was due to the organism described above, and that despite variations it should be classed as a hemolytic streptococcus, at least until such time as the relationship between diplococci and streptococci is more accurately established. Our findings failed to show that the influenza bacillus was in any way connected with the production of the disease at the Puget Sound Navy Yard.

We believe that the use of killed cultures as described prevented the development of the disease in many of our personnel and modified its course favorably in others. We at first used a single strain, but later mixed two or more strains. We do not know that the latter is advantageous.

Attention is invited to the fact that a vaccine made from streptococci apparently protected 662 blue jackets in a camp where Henry found what he considered pneumococci only.

We suspect that there may be different strains of the organism causing influenza (call it what you please), and recommend for vaccines cultures recently from human tissues, preferably from cases in the same community where the disease is prevalent; such cultures must kill rabbits promptly when given intravenously. One should not forget to add a little serum to the culture medium.

We offer no suggestion with regard to the duration of the immunity produced, and in our experience vaccination may be repeated without inconvenience.

We further suggest that the vaccine be tried out in smaller doses as a therapeutic agent in cases in which there is delayed convalescence, unless there is empyema or other evidence of localized suppuration.

Flatulence and Sleep.—Take the earliest example—the infant "muling and puking in its nurse's arms"—keeping its careworn parents awake half the night. Why does the rocking the cradle or "dandling" in the arms so often soothe and produce sleep? Because, owing to the constantly changing axes of the loops of intestines, the bubbles of wind are enabled to pass on. "The hand that rocks the cradle moves the wind." Far better than "ruling the world"! For just the same reason the sleepless adult tosses on his bed from side to side. By doing so he involuntarily coaxes the flatulence to move on from the loops of intestine where it has been accumulating and sending those disturbing messages to the higher centers. And hence many a patient will sleep better after a dose of calomel or blue pill than after one of the recognized hypnotics.—G. King Martyn, M.D., *Medical Press and Circular.*

DEPRESSED FRACTURE OF THE MALAR BONE

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Preparation for the activities of war has made this lesion more frequent than was usual in civil life. It is caused by direct violence of a fall or blow. Automobile or motorcycle mishaps, bayonet and trench drill, mule kicks, and blows in boxing and baseball have been factors in cases brought to our hospital. The extent of the depression, the location of the fracture line, and complicating fractures of other bones differ with the force and direction of the trauma.

In construction, the malar bone itself is more rugged than the maxilla in the immediate vicinity of its articulations. The occasional occurrence of complete or

Fig. 1.—Method of diagnosis in depressed fracture of the malar bone.

partial anesthesia of the area of distribution of the infra-orbital nerve demonstrates definitely that the fracture line runs through its foramen of exit. The orbital plate is also involved. The temporal process may or may not be broken. Emphysema was present in one case. When depression is slight, the external aspect may be speedily covered by the resulting swelling. It is consequently not discovered until the swelling subsides and the deformity becomes manifest.

We have devised a method of diagnosis, illustrated in Figure 1, which definitely determines even a slight depression. Two straight wooden applicators are placed, vertically at the outer edge of the orbit from the prominence of the cheek bone upward, as shown. If depression exists, the difference in angle is obvious. The swelling may be pushed out with the finger tip and the end of the applicator given firm rest on the bone.

The bone may usually be easily raised into position by grasping it through the skin with heavy tenaculum forceps. The ordinary towel clips at hand in every

surgery answer the purpose admirably. A general anesthetic must be given. Gas does well, as the operation is short.

Fig. 2.—Raising of bone by heavy tenaculum forceps.

Figure 2 illustrates the operation. The photograph was taken just as the bone had been raised into place. Figure 3 shows the position of the grasp.

The operator must satisfy himself, both by palpation and by reapplication of the test, that the normal position has been attained. As a rule, when raised, the bone sticks well in place. In one case, during the palpation to determine its position, it slipped down and had to be raised a second time. Caution should be observed to protect the cheek from external pressure until it is well fixed by healing.

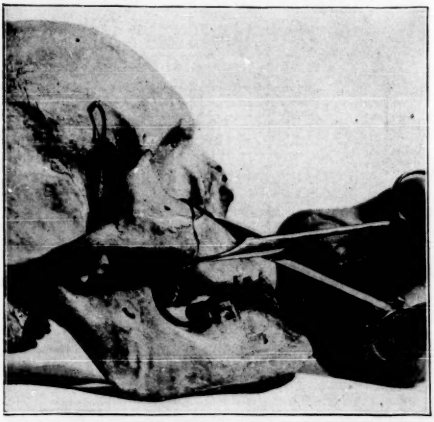

Fig. 3.—Position of grasp.

The facility and accuracy of this method may obviate the flat cheeks that are permanent deformities unless timely correction is made.

RUPTURE OF ENCAPSULATED EMPYEMA INTO THE PLEURAL CAVITY

REPORT OF TWO CASES

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First Lieutenant, M. C., U. S. Army
CAMP MEADE, ADMIRAL, MD.

Following the recent epidemic of influenza at the base hospital, Camp Meade, Md., there were observed two cases that presented a syndrome altogether new to those of us who saw them. We are familiar with cases of empyema rupturing into a bronchus, and have read of cases rupturing externally, but we have nowhere seen described the striking condition brought about by the rupture of an abscess or encapsulated empyema into the pleural cavity. The serious nature of such an occurrence, as shown by the death of one patient in thirteen hours and the desperate condition of the other when operated on, the probable fatal outcome of all cases undiagnosed, and the possibility of saving the patient's life by a prompt recognition of the condition coupled with surgical interference, makes the report of these two cases desirable. Occurring as a sequel of the influenzal pneumonia that has swept through all the camps, it seems probable that our experience will be duplicated elsewhere.

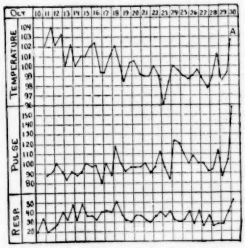

Fig. 1 (Case 1).—Temperature curve, showing patient's improvement until the rupture of the encapsulated empyema. *A*, died, 12:30 p. m.

REPORT OF CASES

CASE 1.—J. E., a private of the supply company, Thirty-Third Field Artillery, was admitted to the base hospital, Oct. 10, 1918, from Evacuation Hospital No. 38, where he had been treated since October 6 for influenza. A diagnosis of bronchopneumonia was made. On admission the physical examination showed both lungs full of moist râles; over both bases behind, the breath sounds were bronchovesicular and the percussion note was impaired. These lung signs remained about the same until October 29, when the right lung was found to be clearing up, but râles were still present throughout the left lung; his temperature had not gone above 100 for a week, and his general condition was much improved.

October 29 at 11 p. m., the patient suddenly complained of a severe pain in the right axilla which was made worse by deep inspiration; a soft pleuritic rub was heard low in the right axilla. One sixth grain of morphin gave no relief, and his condition gradually became worse until 4 a. m., October 30, when the officer of the day was called. He found the patient in an alarming condition; pulse, 160; respiration, 52. He was obviously ill and apprehensive; his dyspnea was extreme, and each shallow breath was evidently attended by much pain. The pain at this time was localized in the right abdomen, which was found to be markedly distended; the abdomen was tender throughout, but more so on the right side; and the liver dulness was obliterated by tympany. His condition was thought to be due to some acute abdominal

complication, such as perforation, but the quality of his pulse was so poor that no surgical interference was undertaken. One eighth grain of morphin only slightly ameliorated the symptoms, and a soapsuds enema did not relieve the distention. At 8 a. m. the patient's condition was the same.

At 10:30 a. m., a careful examination of the chest revealed the fronts clear; in back on the right side below the angle of the scapula, the percussion note was flat and the voice and breath sounds had a distant quality. Fluid was suspected in the right chest, but the abdominal symptoms were so prominent and the patient was so completely in a state of shock that its place in the picture seemed unimportant. The white

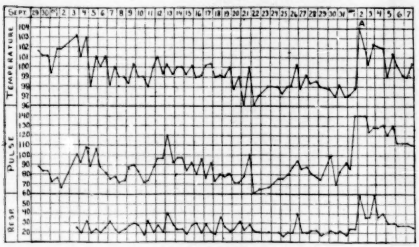

Fig. 2 (Case 2).—Temperature curve, showing patient's improvement until the rupture of the encapsulated empyema, and course following operation. *A*, thoracotomy.

blood count was 71,500; differential count revealed: polymorphonuclears, 95 per cent.; small mononuclears, 4 per cent.; large mononuclears, 1 per cent.

At 12:30 p. m. the patient died.

A postmortem examination revealed the right lung compressed by about a liter of thin, dirty "dish-water" pus from which a hemolytic streptococcus was grown. The lung was tightly tied down to the diaphragm by strong adhesions. In the fissure between the upper and lower lobes, there was an old pocket which might have contained several drams of pus. The compressed right lung showed some areas of pneumonic consolidation. The left lung was essentially normal on gross examination. The intestine was markedly distended; otherwise the abdomen yielded nothing of interest. The cause of death was empyema of the right side complicating bronchopneumonia.

At a loss to explain the sudden change in the condition of the patient and his subsequent early death, we were forced to the conclusion that a rapid absorption of toxins from a large area of serous membrane, associated with a sudden accumulation of fluid, had taken place. The rupture of an encapsulated empyema into the pleural cavity seemed a reasonable assumption as to the cause of the sequence of events, which had simulated quite closely the rupture of an appendical abscess.

Three days later the second example of this syndrome occurred, and the outcome made us feel that our conception of the course of events in the first case had been essentially correct.

CASE 2.—C. L., a private of Company K, Seventeenth Infantry, was admitted to the base hospital, Oct. 2, 1918, from Evacuation Hospital No. 38, where he had been ill since September 28 with influenza. A diagnosis of bronchopneumonia was made. The patient improved rapidly and, October 28, was allowed to be up and around the ward, at which time there were noted a few râles over both lungs behind, but no signs of any consolidation or fluid.

November 1, at 7 p. m., while raising himself from lying across a bed, the patient suddenly felt a sharp pain in his left side. Physical examination failed to reveal any abnormal chest findings.

November 2, at 9 a. m., after a sleepless night, his temperature was 104, pulse, 140 and thready, and respiration, 58. From a condition of apparent health the patient had rapidly passed into a critical state in the course of a few hours. His eyes were bright, cheeks flushed, and breathing shallow and very rapid, accompanied by an expiratory grunt. The left lung showed tubular breathing and flat percussion note over base below the angle of the scapula extending to the anterior axillary line; over the right back below the seventh rib, the percussion note was flat and the breath and voice sounds were markedly diminished. The abdominal muscles were rigid, and tympany extended up over the costal margin as high as the sixth rib on the right side. The white blood count was 41,000; polymorphonuclears, 98 per cent.; small mononuclears, 2 per cent.

Thoracentesis in the eighth interspace below the angle of the left scapula yielded 150 c.c. of turbid "dish-water" pus which, when examined, showed many cocci occurring singly and in pairs (on culture, the pneumococcus).

Three thoracenteses on the right side yielded negative results, the signs probably being due to extreme upward displacement of the liver by tympanites in the rigid abdomen. Removal of the fluid seemed to give the patient slight relief, but his condition was critical.

At 3:30 p. m. thoracotomy was done and a large amount of pus was slowly drained from the left chest, following which, his condition improved slightly.

November 3, the patient being definitely better, the Carrel-Dakin treatment was begun. From then on his improvement was satisfactory.

ESSENTIAL FEATURES OF THIS SYNDROME

During a more or less normal convalescence, the patient feels a sudden, sharp pain in some part of the chest, brought on by a slight exertion. In a few hours he becomes critically ill; the temperature rises sharply to from 102 to 104; the pulse is rapid and thready; the respirations are between 50 and 60 a minute, shallow and extremely painful. The eyes are bright, the cheeks flushed, and the expression is anxious. Mentally the patient is alert and fully aware of his critical condition. The pain is localized in the lower part of the chest or entirely in the abdomen.

On examination, the abdomen is found to be greatly distended, marked tympany extending well up over the liver, and the tenderness, which is general, may be

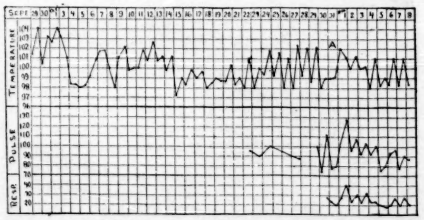

Fig. 3 (Case 3).—Temperature curve, showing course prior and subsequent to operation. *A*, thoracotomy.

more marked on one side than on the other. The chest findings are not striking, but may show evidence of a small amount of fluid at one base. The white blood count reveals an extraordinary polymorphonuclear leukocytosis. The patient's condition becomes progressively worse, with no change in the picture except for increasing prominence of the signs of fluid in the chest.

COMMENT ON CASES

The prominence of the abdominal symptoms and the extreme prostration of the patient led us in the first

case to a faulty diagnosis. In retrospect, however, we were impressed by the absence of vomiting, which would have been expected in a case of general peritonitis.

What occurred, then, was the rupture of a small encapsulated empyema and the quick spread of pus over a large area of the pleural surfaces. As the pleura reacted, a rapid accumulation of fluid took place in the pleural cavity, pushing the lung up and tugging on the adhesions which, in the first case, bound the lung tightly to the diaphragm. The toxemia, owing to the rapid absorption of pus from a serous membrane rich in lymphatics, produced the remarkable reaction that caused sudden collapse. The meteorism and leukocytosis were indexes of the severity of the reaction. The pleuritic pain, coupled with the abdominal distention, explains, though somewhat inadequately, the extraordinary degree of dyspnea. We believe that satisfactory treatment of this condition depends on its early recognition and free drainage of the pleural cavity, thoracotomy being the procedure of choice.

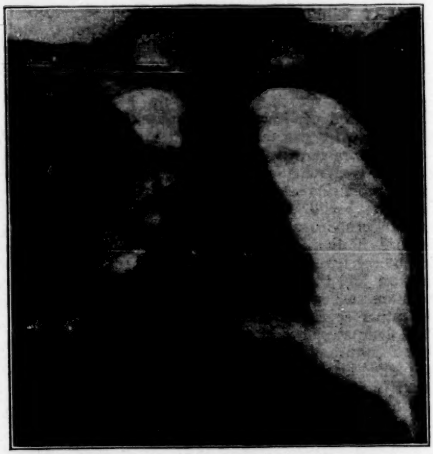

Fig. 4 (Case 3).—Encapsulated empyema which gave no physical signs, being covered completely posteriorly by the scapula and anteriorly and laterally by air-containing lung.

A third case accidentally revealed by the roentgen ray is interesting in connection with the two just discussed:

CASE 3.—S. L., a private of Company 6, One Hundred and Fifty-Fourth Depot Brigade, was admitted to the base hospital, Sept. 28, 1918. A diagnosis of influenza was made.

October 2, bronchopneumonia of the right lung was discovered, and three days later the temperature reached normal. During the next three weeks the patient's convalescence was satisfactory, except for an occasional evening rise of temperature to 100 or 101.

October 28, the physical signs at the right apex suggested the possibility of the condition being a flare-up of an old pulmonary tuberculosis, and so a roentgenogram was made (Fig. 4). This plate showed the presence of an encapsulated empyema entirely covered posteriorly by the scapula and anteriorly and laterally by air-containing lung tissues. At operation about 400 c.c. of thick pus (on culture, pneumococcus) was removed.

Without the aid of a roentgen examination and the subsequent surgical treatment, this case might have followed a course similar to that of Cases 1 and 2.

Two other cases very similar to this one have been observed since our attention was directed toward them.

The prevalence of pneumonia at this time, the impossibility of having a roentgenogram made of every patient, and the lack of physical signs or symptoms preceding this condition, make it probable that other such cases will occur in the near future, and we hope that our experience will prove helpful to others.

PROPHYLACTIC INOCULATION AGAINST RESPIRATORY INFECTIONS

DURING THE PRESENT PANDEMIC OF INFLUENZA PRELIMINARY REPORT *

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In attempting to lessen the incidence and to reduce the severity of infections of the respiratory tract by vaccination, it is essential to consider the wide range of bacterial flora, the relative prevalence of each species, as well as the fluctuations in incidence and severity of these infections with changes in season. The well-defined tendency of bacteria of the same species to localize differently in different epidemics indicates peculiar infecting and antigenic powers. The short duration of immunity to infections following attacks adds greatly to the difficulty. However, owing to the high incidence and high mortality rate from infections of the respiratory tract during the present epidemic, a painstaking effort to raise the resistance of individuals by inoculation with appropriate vaccines appeared to be strongly indicated.

In considering prophylactic inoculations in this epidemic of influenza, we put aside the debated question as to the cause of the initial symptoms and considered primarily the possibility of immunizing persons against the bacteria, pneumonia, streptococci, influenza bacillus and staphylococci, which are conceded by all to be the common causes of death in this disease. It was thought that it might be possible to raise to some degree, by artificial means, the immunity of persons to these micro-organisms to which they appear so susceptible, and thus to lower the incidence of the more serious respiratory infections, particularly pneumonia.

The bacteria found as the cause of the complications in this epidemic appear to have exalted and peculiar infecting powers. The mode of death and the findings in the lungs, for example, in the so-called acute bronchopneumonia following influenza, are quite unique and are strikingly similar, irrespective of the species of micro-organism present. Infection of the lung by hemolytic streptococci without empyema and without tonsillitis indicates peculiar localizing power of this micro-organism. The influenza bacillus appears to have acquired peculiar virulence. The frequency of staphylococci in the sputum and lung associated with pneumococci and streptococci far exceeds that which occurs in lobar pneumonia. A study of the various strains isolated has revealed commonly marked variations in cultural and other properties. Owing to

* From the Mayo Foundation.
* Read before the American Public Health Association, Chicago, Dec. 10, 1918.

these findings, it was the plan to prepare the vaccine not from saprophytized laboratory strains, as is too often the rule in vaccine therapy, but from strains freshly isolated from the sputum and lungs, and to incorporate the bacteria in the vaccine in about the proportion in which they are found, and before the more or less peculiar properties disappear. A bacteriologic study, made during the progress of the epidemic, showed a decided change in the bacterial flora, and hence new strains were added from time to time in order that the vaccine might represent as nearly as possible the bacterial flora of the disease at various stages of the epidemic.

Heretofore lobar pneumonia has been unusually prevalent for some months following epidemics of influenza. It was felt that this would be particularly apt to be the case following the present epidemic, since it began early in the season. It was decided, therefore, to include a series of the fixed types of pneumococci in the vaccine, although they were infrequently isolated, especially during the early part of the epidemic.

A study of the secretions from the nose and throat, of the sputum and lung exudate from the very beginning of the epidemic as it occurred in and about Rochester, revealed commonly, among other bacteria, a streptococcus having some distinctive features. Smears from the nose and throat and sputum at the onset of the attack show quite constantly large numbers of this organism in the form of gram-positive lanceolate diplococci occurring singly, but more often in rather long chains. The epithelial cells are frequently found packed with this micro-organism. On artificial cultivation of these exudates it presents morphologic and cultural features both of the pneumococcus and of *Streptococcus viridans*. It produces on isolation a rather moist, spreading, nonadherent, greenish colony on blood agar plates, and a diffuse cloud in glucose broth. On solid mediums it grows as a lanceolate diplococcus of quite uniform size, and usually is surrounded by a distinct capsule. In glucose broth it produces lancet-shaped diplococci in rather long chains. Smears from the older cultures often show extreme variations in size and shape. Injection of sputum into guinea-pigs is usually followed by death from peritonitis, the peritoneal exudate and blood showing this organism in pure or almost pure form. It is more virulent than the green-producing streptococci from the throats of normal persons, but is less virulent than pneumococci from lobar pneumonia. The strains do not usually ferment inulin. It does not autolyze readily and is not soluble in bile. Owing to these findings the vaccine was made to contain a heavy mixture of these strains.

The organism is undoubtedly the one found by the English investigators and designated by them as diplostreptococcus, and the one found by Mathers and for which Tunicliff finds an increased opsonic content in the serum of convalescent patients. Immunologic and other studies to determine further the relations of this organism to influenza are under way and will be reported later.

Hemolytic streptococci were found next most frequently, particularly in fatal cases during the first half of the epidemic. *Staphylococcus aureus* and influenza bacilli appear to play a minor but definite rôle in the production of the complicating pneumonia in some cases. Hence, examples of strains of hemolytic streptococci, staphylococci and influenza bacilli were included in the vaccine.

PREPARATION OF THE VACCINE

The formula of the vaccine used during the earlier part of the epidemic, and exclusively in the cases in this report, is given in Table 1. The bacteria were grown for from eighteen to thirty-six hours at from 33 to 35 C., in 0.2 per cent. glucose broth. The broth was autoclaved at 20 pounds pressure for from one to two hours to insure freedom from living spores. The glucose was added in a sterile manner from a concentrated sterilized solution in water. It was found

TABLE 1.—FORMULA OF VACCINE

Pneumococci, Types I (10 per cent.), II (14 per cent.) and III (6 per cent.)	30 per cent.
Pneumococci Group IV and the allied green-producing diplostreptococci described	30 per cent.
Hemolytic streptococci	20 per cent.
Staphylococcus aureus	10 per cent.
Influenza bacillus	10 per cent.

that the cultures of pneumococci and streptococci yielded approximately 1,000 million bacteria, and *Staphylococcus aureus* 2,000 million bacteria per cubic centimeter. Luxuriant growth (about 1,000 million per cubic centimeter) of the influenza bacillus was obtained by adding approximately 1 c.c. of laked human blood per liter of glucose broth. The strains were grown separately in the flasks. Smears were made before centrifugation of each flask to eliminate possible contaminations. The pneumococci and allied green-producing streptococci, the staphylococci and influenza bacilli were separated from the broth culture by centrifugation,[1] and then suspended in sodium chlorid solution. At first 50 per cent. of the hemolytic streptococci were added in the form of the killed broth culture, and the other 50 per cent. in sodium chlorid solution suspension after centrifugation. But owing to rather severe reactions, only 25 per cent. of the hemolytic streptococci are added in the form of the broth culture. The streptococci in the broth culture are killed by the addition of 0.5 per cent. cresol. The centrifugated bacteria are suspended in sodium chlorid solution so that 1 c.c. represents approximately the growth from 50 c.c. of the broth culture, and are killed by the addition of from 1 to 1.5 per cent. purified cresol. The dense suspensions are diluted with an equal volume of sodium chlorid solution after the cultures, made twenty-four hours after the cresol is added, have remained sterile for forty-eight hours. In some instances the suspensions became slightly contaminated with *Bacillus subtilis*, when heating to 60 C. for one hour was necessary to render them completely sterile. If this was not sufficient, the suspensions were discarded. At first, owing to the urgent demand for the vaccine, the use of extreme heat in the sterilization of the broth, negative aerobic and anaerobic cultures at the end of from forty-eight to seventy-two

1. In connection with some work on poliomyelitis in which it became necessary to procure large quantities of the streptococcus, the ordinary large cup centrifuge proved inadequate. A number of centrifugal machines were tested to see if they might not facilitate greatly the clarification of broth in its preparation and to separate efficiently the bacteria from large quantities of liquid cultures. A number were found useful; but owing to the simplicity of construction and the ease with which bacteria may be obtained from the revolving bowl without contamination, the one manufactured by the Sharples Separator Company, West Chester, Pa., was selected and has proved satisfactory for the purpose. By the use of the small laboratory size, it is possible, for example, to separate the bacteria from 50 liters of broth an hour. The revolving bowl and other utensils with which the broth comes in contact are autoclaved. A galvanized iron hood built over the machine makes it possible to sterilize the air in the hood with steam; and by siphoning the broth cultures from the bottles, large quantities of bacteria may be collected without contamination.

hours were considered sufficient as sterility tests. It is now the rule to hold the vaccine until all cultures and animal tests have proved negative for one week. Blood agar and glucose broth and glucose brain broth and litmus milk in tall columns are the mediums used for the sterility tests. The vaccine is finally made up by diluting the dense suspensions in the proper proportions with sodium chlorid solution so that 1 c.c. contains approximately 5 billion bacteria. Purified cresol (0.3 per cent.) is used as a preservative. The initial dose for adults is 0.5 c.c. subcutaneously. This is followed in one week by 1 c.c. The third dose is given fourteen days after the first dose, and consists of 1.5 c.c. The doses in children are 0.1, 0.2 and 0.3 c.c. or more according to age. Owing to the relatively large doses, intervals shorter than one week between injections are considered inadvisable.

RESULTS

In most instances there is a moderate local reaction. Constitutional symptoms are usually mild or absent. Both local and general reactions are decidedly less than those following typhoid vaccines. Exceptionally severe reactions occur showing unusual individual susceptibility. The severer reactions are prone to occur in persons who give a history of recent exposure to the disease, or who already have beginning symptoms of it. In these persons, attacks may appear to be precipitated by the vaccination; but the course is usually short and relatively mild. Persons appear to be more sensitive to the vaccine during the incubation period than before or after the attack is established, or following recovery.

Physicians, nurses and employees of the several hospitals in Rochester were first inoculated. After it was determined that injections of the vaccine were followed by an increase in antibodies in the serum, that the inoculations appeared to be quite harmless, that there was no increased incidence of respiratory infection following the inoculations but an apparent decrease instead, it was decided to study its effects on a larger scale as the epidemic became acute. The vaccine was sent gratis for study by the Mayo Foundation to hospitals and physicians on request, on condition that reports of results be furnished.

TABLE 2.—INCIDENCE OF ILLNESS AND MORTALITY FOR ONE THOUSAND PERSONS

	Inoculated					Uninoculated
	After First Inoculation	After Second Inoculation	Within 7 Days after Third Inoculation	Within 6 Weeks after Third Inoculation	Total	
Influenza	23	10	9	14.6	56.6	229
Pneumonia	1.8	1	1	1.8	5.6	15.7
Meningitis	0	0	0	0	0	0.4
Encephalitis	0.04	0	0.05	0	0.09	0.2
Deaths from influenza or pneumonia	0.63	0.08	0	0.19	0.9	3.4
Total number of inoculated and uninoculated persons	28,459	26,150	20,792	20,702	....	61,753

The reports included in this paper are from physicians, hospitals and other institutions, chiefly from cities and towns within a radius of 200 miles from Rochester.

In Table 2 is given a summary of the results obtained in a considerable number of inoculated and uninoculated control persons. The reports containing results in the vaccinated after the epidemic was on the decline are not included. The uninoculated represent such persons in institutions, colleges, factories, corporations and communities where the vaccine was used. Only those reports are included that contain accurate data as to the incidence and mortality among the uninoculated. The age in both the inoculated and the uninoculated falls mainly between twenty and forty years. The observations were made from Oct. 15 to Dec. 8, 1918. It will be seen that there was no apparent negative phase following the first inoculation and that there was a progressive diminution of incidence and death from influenza and pneumonia following the successive inoculations. The total incidence of recognizable influenza, pneumonia and encephalitis in the inoculated is approximately one-third as great as in the control uninoculated. The total death rate from influenza or pneumonia is only one-fourth as great in the inoculated as in the uninoculated. No cases of meningitis occurred in the former, whereas in the latter there were 0.4 per thousand. These results were obtained by including all persons who developed influenza or pneumonia and all who died from the day of the first inoculation, and 7,667 persons, or about one fourth of the total number who received only one inoculation.

The total incidence and death rate in the uninoculated controls are well within the average, as they occur during the present epidemic and hence serve as a fair basis for comparison. Experiments in which alternate control persons were inoculated were not done because of difficulty to obtain consent, and because, after all, the results from prophylactic inoculation must be sufficiently favorable to be apparent under the conditions included in this report.

All but two of over seventy physicians who have used the vaccine report that the attacks of influenza, if contracted by the inoculated, are milder and of shorter duration, and that convalescence is more rapid than in the uninoculated. This agrees with our observations, and is in keeping with the lower death rate among the inoculated. This difference has been noted in communities in which the incidence and mortality rate were exceptionally high as well as where they were comparatively low. In view of this observation, granting that the initial symptoms in influenza may be due to an unknown virus, the lowered incidence of influenza among the inoculated may be only apparent. The attacks may have been so mild as to escape detection.

Among the nurses at St. Mary's Hospital, Rochester, where fourteen developed influenza within two days prior to the first inoculation, only one case developed subsequently during a period of six weeks. Similar apparent protection was afforded to the personnel of other hospitals following vaccination. At the State Hospital for the Insane at Rochester, with a total population of about 1,500, where one case of influenza had occurred before the inoculations were given, only three cases occurred following the date of the first inoculation for a period of six weeks. With the occurrence of the second wave of the epidemic, however, there occurred a mild outbreak of the disease. This would indicate that the immunity is of short duration.

Nearly all of the patients with influenza and pneumonia admitted for treatment in the hospitals in Rochester, where approximately one half of the population has been vaccinated, have been from the unin-

oculated group, excluding those patients who contracted the disease elsewhere.

In one hospital in which the nurses had been inoculated, no cases developed after the inoculations, though the nurses continued to care for patients with influenza. Owing to the scarcity of vaccine, some of the nurses, living under identical conditions, were not inoculated, and a high percentage of these contracted severe attacks.

Numerous instances have been observed in which protection appeared to be afforded to inoculated members of families of which all the uninoculated became ill. Similar results were obtained when conditions among the inoculated and uninoculated were comparable, such as in offices, factories and schools, where nearly all were inoculated, or where only a small percentage were inoculated. Illustrating results are as follows:

Of 1,000 persons employed by one company, 481, about one half, received one inoculation; 224 received two inoculations, and ninety-five received three inoculations. From October 28, the date of the first inoculation, to December 8, 138 cases of influenza occurred, only twenty of which were among persons who had had one or more inoculations. Of these, fourteen had had only one inoculation, and the remaining six had but two inoculations. There were thirteen deaths, only two of which followed influenza among the inoculated, and in these two cases only one inoculation had been given.

The mortality from bronchopneumonia in pregnant women has been especially high during the present epidemic. The vaccinations in a fairly large number of such persons appear to have afforded some protection against this complication. The bacteria included in the vaccine belong to the general group of microorganisms associated commonly with chronic infections, such as arthritis, sinusitis and bronchitis; hence some effect should follow its injection. Striking instances of improvement in these conditions have been noted but whether due to specific or nonspecific effects or whether the vaccine acts as an "exfoliative stimulus" according to Larson, liberating preformed specific antibodies, remains to be determined.

From the results obtained thus far, it appears possible to afford a definite degree of protection by prophylactic inoculation to persons against the more serious respiratory infections during the present epidemic of influenza. The duration of immunity is not known, but indications are that it is relatively short.

The vaccine should contain freshly isolated strains of the more important bacteria in approximately the proportions as found in the sputum and lungs in the disease, and since the relative proportions of the bacteria at hand differ so markedly in widely separated communities, judging by the reports, the formula of the vaccine should be made to conform as nearly as practicable to the respective flora of the disease in the communities in which the vaccine is to be used.

A saline vaccine was used as an emergency measure. Owing to the large number of different bacteria that need to be included and the large doses necessary, a lipovaccine, judging by the recent work of Whitmore, ought to possess definite advantages, since reactions should be less severe, the formation of antibodies more marked, and the resulting immunity more enduring.

I am constantly being asked with regard to the use of the vaccine in treatment. Since the severer complications in influenza, such as pneumonia, do not usually begin until the fourth day or later, the vaccine, if given at the onset of the disease might reasonably be expected to afford some protection. The initial prophylactic dose daily for one, two or three days, provided no unfavorable symptoms occur, is recommended. The results obtained are considered preliminary, and final conclusions cannot be drawn at this time. It is indicated that the vaccine used was at least harmless, that a certain degree of protection was afforded, and that prophylactic inoculation against the respiratory infections, so fatal during this epidemic, be studied on a large scale by many according to the principles herein laid down.

TREATMENT OF INFLUENZAL PNEUMONIA WITH PLASMA OF CONVALESCENT PATIENTS*

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AND
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The addition of 33⅓ per cent. to the normal population of Washington during the past eighteen months has given us a great military camp with barracks-like overcrowding, yet there is nothing comparable to the military supervision of health conditions.

In the present epidemic, the Medical Department of the Navy is treating not only the officers and their families and the enlisted personnel, but also all civilian employees. Up to December 16, 567 cases of influenza and complicating pneumonias were treated at the Naval Hospital. Of these, 157, or 27.8 per cent., either came in with pneumonia or developed it during the residence.

Without going into the clinical picture of the disease, we may say that the outstanding feature is an overwhelming toxemia. Characterized by headache, muscular fatigue and pain, mental dulness, leukopenia and in many cases nausea and vomiting. Nature's forces, thus paralyzed, failed to respond to ordinary therapeutic measures, especially when pneumonia of whatever etiology complicated the disease. Two factors, we believe, aided in keeping our mortality percentage low in the first days of the epidemic, namely, digitalis and venesection. Isotonic glucose and sodium bicarbonate intravenously and massive doses of camphorated oil were each given in a series of cases without beneficial results. In the later stages venesection was most efficacious in combating dilatation of the heart and flooding of the lungs. Time and again when it seemed that the patient must drown in his own secretions, venesection cleared the bronchi and slowed respiration so that the patient was able to sleep. Blood was drawn with a needle into a sterile 8 ounce nursing bottle so that cultures might be made in each case. Out of forty cultures ten were found positive, showing pneumococcus Type I in 2 cases; Type II in 2 cases; Type IV in 4 cases, and *Streptococcus viridans* in 2 cases. Three patients having positive

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several charts. The complete article appears in the authors' reprints.

blood cultures recovered. Pfeiffer's bacillus was grown repeatedly from the sputum, lung puncture and necropsy material, but never from the blood stream.

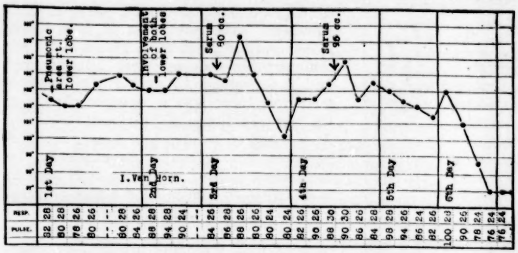

Chart 1.—Temperature, respiration and pulse in a case of influenzal pneumonia in a nurse. The attack began with a severe chill, cough, marked general pains, nausea and vomiting. Physical examination revealed signs of beginning pneumonia in the right lower lobe posteriorly. On the second day the pneumonic area in the right lower lobe showed signs of extending, and a small area was made out in the left lobe. The patient was prostrated, vomited continuously, and was unable to retain anything by mouth. She refused to accept serum treatment. On the third day the patient was much worse. Physical signs of pneumonia were extending in both lower lobes, prostration had increased, vomiting continued, and she was stuporous. Following the injection of plasma there was a chill with a rise in temperature to 106 with no disturbance in pulse or respiratory rate. Sweating was profuse. This was followed by a precipitate drop in temperature to 100 and an improvement of all symptoms. The patient was clear mentally, muscle pains were gone, and vomiting ceased. The following day the temperature again began to rise, the vomiting returned, and all subjective symptoms returned. A second injection of plasma was given and was followed by a slight chill and a rise in temperature. A few hours later the vomiting ceased entirely, the patient brightened up mentally, all pains were relieved, and convalescence was established.

At the height of the epidemic, a suggestion came from Boston Chelsea Hospital that the serum from convalescent patients might be of curative value. We at once determined to give the method[1] a thorough trial, but we chose to use citrated plasma rather than the serum obtained by clotting and centrifuging.

The apparatus and procedure as used by us has already been described.[2] Blood plasma is obtained by this method with the minimum of labor and danger of contamination. A larger amount of plasma is obtainable and the excess fluids added are a distinct advantage in view of the profuse perspiration following its administration. We believe that the failure of this method of treatment has been due in many cases to its having been tried half-heartedly, owing to the difficulties and labor involved in the collection of the plasma or serum.

On being discharged to the convalescent wards, the pneumonia patients are sent to the laboratory for Wassermann tests, and their venereal history is carefully inquired into. If convalescents are accepted, they are bled twice after being about the ward from four to six days, in amounts of from 300 to 500 c.c., with several days intervening between the bleedings. In only two instances have the donors mentioned sensations of faintness; these were of transient character and were probably due to the rapidity with which the blood was withdrawn. A majority of the men noticed that they gained weight much more rapidly after they had given blood.

The blood thus drawn is sedimented in the ice chest from twelve to twenty-four hours, and an average of 250 c.c. of plasma citrate-salt solution mixture are obtained from every 500 c.c. of blood.

METHOD OF ADMINISTRATION

The plasma is administered intravenously from a graduated container by the gravity method. A small needle and low pressure are used so that fifteen or twenty minutes are consumed in giving the average dose of 125 c.c. The arm selected is elevated and supported with a pillow, care being taken that there is no tight clothing about the shoulders, thus avoiding the possibility of stagnation and agglutination in the vein.

With these precautions taken, it is not essential that the plasma be compatible with the blood of the patient. Indeed, grouping of the plasma and tests for compatibility are eliminated altogether. Doses of less than 100 c.c. are not indicated because they may produce uncomfortable reactions in the patients without giving any permanent relief of their symptoms.

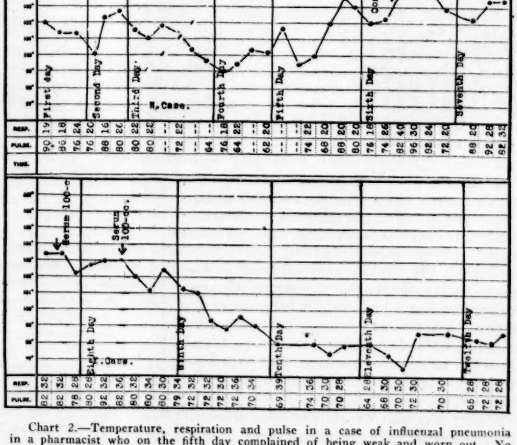

Chart 2.—Temperature, respiration and pulse in a case of influenzal pneumonia in a pharmacist who on the fifth day complained of being weak and worn out. No definite physical signs were made out. On the following day he was stuporous, showed marked prostration, and developed a severe cough. Physical examination revealed small pneumonic areas in both lower lobes. Twenty-four hours later he was given 100 c.c. of serum. There was no chill or reaction following it, but there was an immediate and marked improvement in his mental condition and entire relief from muscular pain. The injection was repeated on the following day and no reaction followed it. Next day the temperature reached normal.

1. The details of the method were later published by McGuire, L. W., and Redden, W. R.: Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum, J. A. M. A. **71**: 1311 (Oct. 19) 1918.

2. Hartman, F. W.: New Methods for Blood Transfusion and Serum Therapy, J. A. M. A. **71**: 1658 (Nov. 16) 1918.

REACTIONS FOLLOWING ADMINISTRATION

In approximately 75 per cent. of the patients there is a response of some kind within two hours. This may be manifest by chilly sensations or a frank chill

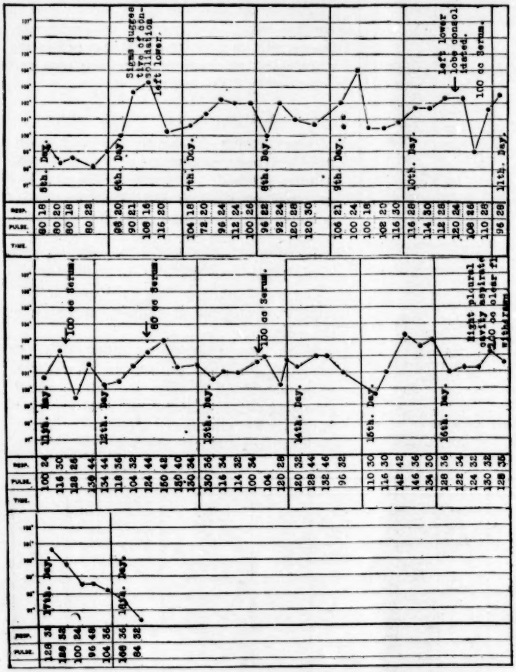
100 cc Serum.
60 cc Serum.
100 cc Serum.
100 cc Serum.
Slight dyspnea 2 hrs. after injection.
Left lower lobe consolidated.
Right pleural effusion aspirated 240 cc bloody fluid.

Chart 3.—Temperature, respiration and pulse in a case of influenzal pneumonia complicated by pleurisy with effusion.

lasting several minutes, a rise in temperature of from 1 to 2 degrees, and drenching perspiration. The use of hot water bottles and extra blankets at this time affords comfort to the patient and encourages perspiration. In our experience these reactions do not weaken or prostrate the patient, but leave him with a slower pulse, freer and easier respirations, and a reduced if not a normal temperature. At the same time the subjective symptoms of headache, muscle pain and mental depression are relieved in a marked degree.

Chart 1 is that of a nurse who refused the treatment until there was involvement of both lower lobes, and she was too ill to care what happened. In addition to other symptoms, she vomited constantly. Within two hours after she had received 80 c.c. of plasma, the temperature began to fall and the vomiting ceased. This relief lasted only eight hours, but a second injection (against which she was alert enough to protest strongly) was followed by cessation of vomiting and uneventful recovery.

One fourth of the cases show no reaction or only perspiration, yet get the same though perhaps less prompt results from treatment. Chart 2 is that of a pharmacist who would not give in to the infection until pneumonia developed, areas of consolidation were made out in both lower lobes, and the respiration rate was 32 per minute. Two doses were administered within a twelve-hour period. Almost immediately there was a complete change in the mental attitude and physical condition. At the end of twenty-four hours the temperature was normal. As expressed by the patient himself, a heavy weight seemed to be lifted off him in such a way as could only be appreciated by one who had experienced it. Again and again we have seen patients pass from the preliminary stage, after treatment, into sound sleep, like that of a child, to awake hours later feeling perfectly well, ready to eat anything.

Those pneumonias developing in the hospital and treated within forty-eight hours have shown the most clear-cut and striking results, due, we believe, to the neutralization of the toxin or toxins freeing natural forces to combat secondary invaders. In these cases the physical signs do not extend, but may persist for several days. In the terminal stages circulation is so poor and the lung involvement so extensive as to make this treatment uncertain and unsatisfactory because serious symptoms may be aggravated rather than relieved.

POTENCY OF PLASMA

In the first cases we injected only the compatible plasma; hence we were unable to pool that drawn from the various convalescents. With this procedure it was found that 25 per cent. of the plasma was very potent, 65 per cent. was moderately potent, and 10 per cent. was inactive. The plasma collected as late as thirty days after the temperature had become normal seems to be potent, as is also that of convalescents who were treated during their pneumonia.

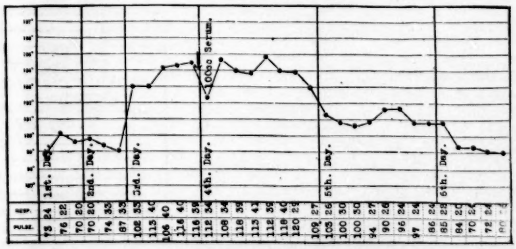

Chart 4.—Temperature, respiration and pulse in a case of influenzal pneumonia in a woman who was a superintendent of nurses and refused to give up her duties until prostrated. On the third day the temperature rose to 103, pulse 113, and respirations 40. Signs of pneumonic areas in the lower lobes of both lungs were made out. One hundred c.c. of serum were administered intramuscularly. During the next twenty-four hours the temperature fluctuated between 104 and 105, and then began falling by lysis, accompanied by improvement in both pulse and respiration. The patient was discharged on the twelfth day.

Agglutination and complement fixation tests with five strains of the influenza bacillus and twelve different serums were uniformly negative. Agglutination tests on Types I, II and III pneumococci were likewise negative. Unfortunately no such tests were made with the diplostreptococcus, which was present in many of the early cases.

RESULTS OF TREATMENT

Complications of any kind interfere markedly with recovery. Pleurisy, and particularly pleurisy with effusion, seems to neutralize the beneficial properties of the plasma. Chart 3 is that of a patient first treated five days after suggestive signs of pneumonia were made out. Each of four injections was followed by temporary improvement, but he grew weaker until

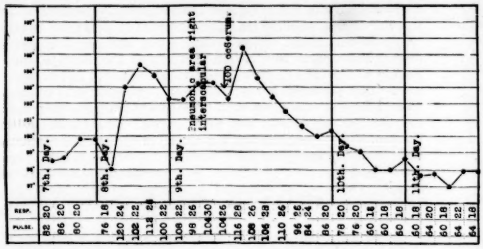

Chart 3.—Temperature, respiration and pulse in a case of influenzal pneumonia developing five days after temperature became normal.

the sixteenth day, when, following the aspiration of 200 c.c. of fluid from his right pleural cavity, the temperature dropped to normal and an uneventful recovery was made.

Two of three fatal cases showed extensive fibrinous pleurisy with an effusion of about 200 c.c. of serosanguineous fluid, containing many pneumococci in each pleural cavity. The third case showed an encapsulated empyema on the left side from which Group I pneumococci were cultivated. One of the two patients mentioned above had a pneumococcus Type IV septicemia, the organism producing green coloration in different culture mediums. Treatment in all three cases was begun late, either because we did not see the cases until late or because definite signs of pneumonia were not made out until late.

Up to the present time, forty-six cases of influenzal pneumonia have been treated with three deaths resulting, making the mortality percentage 6.5. Of 111 patients untreated, twenty-eight died, giving a mortality percentage of 25.2, or about four times the percentage mortality among forty-six treated cases.

CONCLUSIONS

1. The toxemia of influenza seems to be neutralized by the plasma from convalescent patients.

2. Certain care being exercised, tests for compatibility are eliminated.

3. A large percentage of all plasma is active, and most satisfactory results are obtained by pooling the different lots.

4. Sharp reactions are followed by the most prompt improvement, but are not essential to success.

5. Pneumonia must be diagnosed early and treated immediately if a large percentage of recoveries are to be obtained.

OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE SPINE WITH GRAVE PARALYSES *

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It appears to be generally held that operation is contraindicated in recent gunshot wounds of the spine when there is complete or almost complete paralysis and sensory loss below the level of the cord injury. From a number of reported observations, however, it seems clear that paralysis ranging from slight to most extreme may be associated with wounds in the neighborhood of the spine without involvement either of bone or of dura. The hopeless destruction of the cord by the missile or by bone fragments can be determined without operative intervention in not a few cases, and in these operation is of no avail. There are many cases, on the other hand, in which such cord destruction cannot be shown unequivocally by roentgenographic and clinical examination and the study of the course of the missile, instances in which operation may reveal a partially severed, contused or compressed cord. Basing my opinion on several experiences with cases of this type, I believe that these patients should be given the benefit of doubt as to the completeness of the cord lesion, and that operation should be performed in the hope of encountering remediable conditions.

My special purpose in the present contribution is to discuss a group of cases of gunshot wound of the spine in which the dura is intact in the presence of complete or almost complete paralysis, the lesion in the cord being attributable to commotion or concussion or to both combined. In the fatal cases examination discloses either a diffuse or a focal necrosis in the affected part of the cord with a varying degree of surrounding edema. Sometimes all the cord elements are destroyed at this level, but more frequently greater or lesser portions remain intact. The presumption is that in the favorable cases, those in which functional recovery occurs to a varying degree, edema was a prominent element in the lesion. There is, then, a group of cases of gunshot wounds in the spinal region, with intact dura and with grave paralysis, in which the possibility of return of function exists. In injuries by shell fragments, the chances of recovery from the wound are greatly reduced or even entirely eliminated if a deep-seated wound infection is added to the cord lesion with its complications. In addition to the indirect effect on the cord of the type of injury in question, there may be fragments of bone or epidural clots directly compromising the dura, the removal of which would aid in recovery and reduce the likelihood of epidural infection. It is chiefly, however, for the elimination of infection, and not with the expectation of relieving pressure on the cord, that I believe prompt operation is indicated in these cases. This point of view received support in a series of spinal wounds under my care at British Casualty Clearing Station No. 17 last year. Of twenty-two patients with spinal wounds accompanied by manifestations of severe damage to the cord, four fell into the category of

* From Mobile Hospital No. 2, A. E. F.

wounds with complete or almost complete paralysis and intact dura. Operations were performed within short periods of the time the wounds were inflicted. The subsequent course was satisfactory in all four cases. This cannot be ascribed to the operation on the spine in itself, but to the control or elimination of infection.

Concerning the technic of operation that was employed, little need be added to the details given in the case reports. The wounds were excised in the usual manner. When the roentgenographic examination showed fracture of the spines or laminae, or when an intradural hemorrhage was suspected, laminectomy was done. This was carried out in the typical way rather than by a piecemeal removal of loose or detached fragments of bone. I believe that the latter procedure, in the necessarily limited operative exposure and the distortion of landmarks, may inflict damage to the dura and possibly to the underlying cord. The dura was not opened in any of the cases in question, because there were no visible signs of a subdural lesion. After recent injuries, patients with serious cord damage are not good operative risks, and the operation should, therefore, be expeditiously performed; suitable instruments are important aids to this end.

The following are reports of the four cases of gunshot wounds of the spine in which paralysis was complete or almost complete, and in which the dura was found to be intact. The spinal column was fractured in three, but in only one of these was there any indication of direct pressure on the dura. There was no demonstrable bone injury in the fourth case. The follow-up notes are included in the case reports.

REPORT OF CASES

CASE 1.—*Penetrating wound in the cervical region, with missile lodged between atlas and axis. Almost complete quadriplegia. Excision of tract and removal of foreign body. Progressive improvement.*

The patient, admitted, October 24, sixteen hours after being wounded, complained of loss of power in all four extremities, was unable to void, and had severe pain in both arms. The entry wound was a large, lacerated one in the left suprascapular region. There was profound weakness of both arms, the left being almost completely paralyzed; there was double wrist drop. All reflexes were absent except the right triceps. The abdominal reflexes were absent, the cremasterics sluggish. There was marked paresis of the right leg, almost complete paralysis of the left, double foot drop, and slight knee and ankle jerks. Detailed sensory examination was impossible because of the patient's restlessness and poor general condition; however, there appeared to be complete sensory loss up to the level of the fourth dorsal segment, and reduction in sensation from there to the third cervical. Roentgenographic examination revealed a large foreign body to the right of the midline and immediately above the body of the second cervical vertebra.

Operation, performed shortly after admission, consisted in excision of the entrance wound and tract. This crossed the midline above the third cervical spine without producing any bone injury. The tract ran deeply alongside the spinous process of the axis up to the foreign body lodged between the arch of the atlas and the body of the axis. The posterior atlanto-axial ligament was divided on the right side, but there was no evidence of epidural clot. The foreign body was removed and the wound sutured.

During the week's postoperative observation there was progressive improvement and power on the right side, slight on the left, and reduction of sensory disturbances; there was incomplete bladder control. A medical report three weeks later stated that the power was good in both legs and the right arm, and that movements were returning to the left arm; there were no areas of complete sensory loss; the bladder control was fair.

Subsequent reports described progressive improvement. The last report, eight months after operation, states that there is good power in both legs, the patient being able to walk short distances without assistance; the power in the right arm is almost normal, and the left arm is steadily improving; there is full control of bladder and bowels.

CASE 2.—*Perforating wound of neck with fractures of spines and laminae of fifth and sixth vertebrae. Almost complete quadriplegia. Excision of tract, and laminectomy. Progressive improvement.*

The patient, admitted, November 8, forty-eight hours after being wounded, had been unconscious for about eighteen hours; he then found that his legs were paralyzed, his arms numb and weak, and that he was unable to void. The entrance wound was a small one in the left suprascapular region, the exit a large, ragged one in the right suprascapular fossa. There were slight movements at the left shoulder, slight flexion at the elbow, no extension, and complete wrist drop. Except for very slight rotation at the shoulder and flexion at the elbow, there were no movements in the right arm. The abdominal and cremasteric reflexes were absent. The right leg was completely paralyzed, and this was true for the left leg except for slight flexion and extension at the hip. The knee and ankle jerks were absent. Sensations were reduced from the fifth cervical to second dorsal segments, and lost from the latter level downward. Roentgenographic examination revealed a fracture of the body and laminae of the fifth cervical vertebra without in-driven fragments.

Operation, performed shortly after admission, consisted in a typical laminectomy. After separation of musculature through a median incision, the spinous processes of the fourth, fifth (fractured) and sixth cervical vertebrae were stripped free and removed. This was followed by removal of the corresponding laminae; there was considerable comminution of those of the fifth, and less of the sixth. None of the fragments impinged on the dura. This was found intact, of normal color, and without any suggestion of subdural injury. The tract was excised, the laminectomy wound closed, and the sites of entrance and exit drained.

Improvement occurred in the eight days' hospital observation. At the time of discharge there was partial bladder and good bowel control. Sensation had largely returned except over areas on both legs. There was fair motion and power at the left shoulder and elbow, and incomplete wrist drop; total right-sided wrist drop persisted, and the motions at the right elbow and shoulder were still very slight. All motions were present in the lower extremities, although to a very slight degree on the right side. The abdominal reflexes were sluggish, the cremasterics absent. Knee and ankle jerks, bilateral ankle clonus and the Babinski phenomenon were present. The laminectomy wound healed by primary union; the drained wounds were in satisfactory condition.

Reports on the subsequent course were received from the patient. There have been several setbacks, but improvement has been progressive. The last report, nine months after operation, describes tentative efforts at walking, good power but considerable stiffness in the legs, good power in the left arm, and fair power in the right.

CASE 3.—*Penetrating wound of dorsal spine with missile lodged in thorax. Almost complete paraplegia. Laminectomy and partial excision of tract. Progressive improvement.*

The patient, admitted, November 12, seven hours after being wounded, had immediate paralysis and numbness of the legs following the injury, and was unable to void. There was a small lacerated entrance wound over the seventh dorsal spinous process. The general condition was poor. There were physical signs of a left-sided hemothorax, and profound paresis of both legs, more so on the left side, where there was very slight motion at the hip and knee, with none at the ankle and toes. Knee and ankle reflexes were present. Sensory disturbances of a somewhat Brown-Séquard character

began at the level of the ninth dorsal segment. Roentgenographic examination revealed fluid in the left pleural cavity, and a small shell fragment to the left of the body of the eighth dorsal vertebra.

Operation was performed six hours after admission, when the general condition had somewhat improved. The entrance wound was excised, and a typical laminectomy performed. The spines and laminae of the seventh, eighth and ninth dorsal vertebrae were removed. There was a comminuted fracture of the left transverse process and lamina of the eighth, some of the loose fragments impinging on the dura. A small epidural clot was removed. Excision of the tract to the pleura was performed, further intrathoracic dissection being considered inadvisable owing to the general condition of the patient and the type of operative exposure required for access to the foreign body in this region. The wound was sutured in layers.

In the ten days' postoperative observation at the hospital, the wound healed by primary union, and complete bladder control returned. There was steady improvement in power and range of motion in the right lower extremity; there were slight motions at the left hip and knee, but none at the ankle or toes. There was reduction in the area of altered sensation.

Progressive improvement was reported from time to time. Five months after operation the patient was up and about with good power in the right leg and fair power in the left. The last report, seven months after operation, states that, except for slight weakness in the left leg, there is normal function in both legs.

Although it was an injury to the cauda equina, the following case is included because it presents the same picture of central injury with intact dura:

CASE 4.—*Penetrating wound in lumbar region with missile lodged in front of vertebra. Paralysis of right leg. Laminectomy and excision of tract. Progressive improvement.*

The patient, admitted, October 19, six hours after being wounded, with loss of power in the legs, inability to void, and severe, shooting pains down the right thigh and the leg, had received a large, ragged wound in the right lumbar region. In the right leg slight motion was present at the knee and absent elsewhere; on the left side slight motions were present at the hip, knee and ankle. Both knee jerks were absent; the left ankle jerk was present, the right absent. All sensations were lost in the distribution of the fourth and fifth lumbar and first sacral roots. Roentgenographic examination revealed a large shell fragment anterior to the body of the third lumbar vertebra.

The first stage in the operation consisted in laminectomy, because it was thought from the roentgenographic examination that the foreign body had traversed the laminae. The third, fourth and fifth lumbar spines and laminae were removed, without any fracture being disclosed. The tract of the missile was then excised. The tract was found to pass through the body of the third lumbar vertebra. Loose bone fragments were removed; the foreign body could not be felt. The laminectomy wound was closed, and the remainder of the wound treated by Carrell-Dakin's method.

There was postoperative pneumonia. On examination from the hospital, ten days after operation, power in the left lower extremity was greatly improved; slight motions were present at all the joints of the right. There was improvement in sensation.

Discharge from the wound continued for several weeks, ceasing after removal of the foreign body and some bone fragments. Four months after operation the patient was able to walk with the aid of a cane, the left leg was normal, and power was much improved in the right. No subsequent report has been received.

Infant Breast Feeding.—It is of paramount importance to the future of this country that infant breast feeding should be maintained and extended. There must be no avoidable spilling of infant life. Every little stranger is now no longer a somewhat unwelcome intruder, but a precious commodity to be jealously guarded.—Sir James Crichton-Browne, *Journal of State Medicine*, May, 1918.

RÔLE OF THE BLOOD AND THE BONE MARROW IN CERTAIN FORMS OF GAS POISONING

I. PERIPHERAL BLOOD CHANGES AND THEIR SIGNIFICANCE

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FRANCE

Hematologic examinations made during the past ten months in a base hospital in France on certain gassed patients (mustard gas) offer strong evidence that the deleterious action of the poison on the blood and bone marrow is an important factor in prognosis in many cases.

The first change in the circulating blood—apparently due to a stimulus to the bone marrow—is an increase in the erythrocyte and leukocyte count, that naturally varies greatly with the severity of the gassing and the individual's reactive powers. In view of the disproportionate increase of red and white cells, change in Arneth scale, etc., the possibility of this being due to a greater concentration of the blood may safely be disregarded. The leukocyte rise (due to the polymorphonuclear elements) may be as high as 36,000 per cubic millimeter, and in the present series averaged 12,000. Enumeration of the lobes of the nuclei (Arneth count) shows at this time a shift of the Arneth scale to the left, that is, young polymorphonuclears are entering the blood stream. This increase of leukocytes soon disappears in the slightly gassed patients, the count gradually returning to normal, and in the severely gassed patients falling rapidly. The shift of the Arneth scale to the right at this period indicates an exhaustion of the leukocyte-forming centers. If death does not interrupt the downward course, an extreme degree of leukopenia (at the expense of the polymorphonuclears) may be reached. Thus the leukocyte counts of four fatal cases were observed to fall steadily from (1) 10,200 to 2,900; (2) 17,800 to 3,200; (3) 20,400 to 7,600, and (4) 36,000 to 14,000 per cubic millimeter. Postmortem examination of the femoral bone marrow reveals only a slight mottling, shown histologically to be due to primordial cells and megaloblasts, with a greater or less disappearance of normoblasts, myelocytes and adult forms. This has been interpreted as an inadequate attempt at blood regeneration, and the resulting lack of leukocytes in the blood stream may be considered to amount to an important weakening of the body defenses. Even in the bronchopneumonia that frequently supervenes in severely gassed patients, little or no reactive rise in leukocyte count is observed. In the accompanying table, only those cases are credited with bronchopneumonia, in which it was found at necropsy, and yet there are in it several instances in which leukopenia coincided with extensive bronchopneumonia. It is recognized, of course, that death may occur while moderate leukocytosis still exists; but a high leukocyte count should undoubtedly be considered a favorable item in the prognosis of a serious case of gassing.

In two cases of especial interest, leukocyte counts taken nine days after gassing showed the extraordinarily low counts of 570 (Harden) and 520 cells per cubic millimeter (Kerr), chiefly due to an almost total

disappearance of polymorphonuclears. Both patients in ensuing daily counts showed a progressive rise with outpouring of myelocytes into the blood stream, but died with an extensive bronchopneumonia before the blood picture returned to normal. This may be interpreted as a partial recovery of the bone marrow from the initial insult, but not in time to help adequately to protect from the bronchopneumonia.

The question as to whether there is a real loss of leukocytes or a redistribution in the lungs at the expense of the blood stream must be taken into consideration, especially in view of the experimental work of Edkins and Tweedy[1] on gassed rabbits. The bronchopneumonic lungs and inflamed tubes have certainly shown the masses of leukocytes that are usually found in these conditions, so that, especially in view of the changes found in the bone marrow, the most probable hypothesis to explain the leukopenia in the blood stream would seem to be that the damaged source of supply was unable to furnish sufficient leukocytes for the local needs, and as well a superabundance in the blood, as it normally is able to do. In this connection also the myriads of organisms and relative lack of pus cells in the sputum is of interest.

The changes in the other elements of the blood are less striking; the initial rise in erythrocytes is later replaced by a moderate anemia (occasionally reaching below 4 millions). That this is due to lessened blood formation, rather than increased destruction, is shown by the normal condition of the plasma, absence of choluria, and of poikilocytes or blast cells in the blood stream.[2] In convalescent cases, the increased blood regeneration is shown by a distinct increase in the number of skeined cells, as well as the return of the leukocyte count to or slightly above normal. In the earlier stages at least the coagulation time of the blood is decreased and platelets appear very numerous and large on a film, though no actual counts have been made. In the later leukopenic stage, the platelets are much sparser, and in one case a coagulation time of seven minutes has been noted.

Attempts to apply this theory of damaged blood and bone marrow to the treatment of gassed patients have

1. Edkins, J. E., and Tweedy, N.: The Early Changes in Lungs by Gas Poisoning and Their Significance, Report 2, Chem. Warfare Med. Com., April, 1918.

2. Pearce, R. M.; Krumbhaar, E. B., and Frazier, C. H.: The Spleen and Anaemia, Philadelphia, J. B. Lippincott Company, 1918.

BLOOD COUNTS OF GASSED PATIENTS

Case	Date Gassed	Date of Examination	Lots	Differential Count, per Cent.					R. B. C. in Mill.	Per Cent. Hb.	Miscellaneous
				Polymorphonuclears	Small Lymphocytes	Large Lymphocytes and Trans.	Eosinophils	Myelocytes			
	1917	1917									
1. H.	7/21	7/26	8,000	84	13	3	...	..	5.2	89	Coagulation time 2.2 min.; died 6 hours later
2. B.	7/21	7/26	9,600	87	12	1	...	..	4.6	90	Moderately severe case
		8/ 1	9,600	..	..	..	...	..	5.2	..	Much better; evac. to Eng. 8/12
3. V.	7/21	7/26	10,200	94	4	2	...	..	4.1	90	Severe
		7/28	5,600	63	31	5	(mast 1)	..	4.7	..	Toxic psychosis
		7/30	2,900	24	61	9	(mast 1)	6	4.1	..	Died same day; no bron. pneu.
4. L.	7/21	7/26	6,000	84	14	2	...	..	4.7	81	Very toxic; died 8/1 br. pneu.
5. S.	7/21	7/26	10,600	77	20	3	...	..	5.3	95	Mild
		8/ 1	12,600	82	10	5	...	3	...	..	Much better; evac. to Eng. 8/10
6. C.	7/21	7/26	9,000	86	11	3	...	..	4.2	97	Mild case
7. G.	7/21	7/26	8,000	53	33	14	...	..	5.0	92	Very mild; evac. to Eng. 8/15
8. B.	7/21	7/26	12,400	..	..	..	...	..	3.8	..	Severe; evac. to Eng. 8/6
9. H.	7/21	7/26	9,000	..	..	..	...	..	5.7	..	Severe
10. S.	7/21	7/27	6,000	85	14	1	...	..	3.6	..	Severe; delirious; evac. Eng. 8/13
11. W.	7/21	7/27	29,800	93	4	7	...	..	3.0	..	Severe; died 7/30 lob. pneu.
12. L.	7/21	7/27	9,600	..	..	..	...	..	4.7	..	Severe; died 7/30
13. G.	7/21	7/27	10,800	..	..	..	...	..	4.9	..	Moderate
14. S.	9/29	10/15	10,000	..	..	..	...	..	4.8	..	Coag. time 2.8 min.; no br. pneu.
		10/30	12,800	..	..	..	...	..	5.0	..	Better
		11/ 3	8,800	73	21	5	1	..	4.3	..	Better; evac. to Eng. 11/9
15. B.	10/ 3	10/15	10,800	82	16	2	...	..	3.8	..	Arneth count: 1 lobe, 8 per cent.; 2, 14; 3, 32; 4, 32; 5, 14; slight shift to right
		11/ 1	9,000	..	..	..	...	..	...	..	Improved; evac. to Eng. 11/9
16. B.	10/17	11/ 3	16,000	..	..	..	...	..	4.7	..	Worked for 6 days after gassing; died 11/9 lob. pneu.
17. S.	10/12	11/ 3	6,200	..	..	..	...	..	...	..	Mild; did well until 10-31, then tuberc.; evac to Eng. 11/15
18. C.	10/12	10/15	11,000	72	16	8	4	..	5.1	..	Coag. time 1.4 min.; Arneth 1, 0; 2, 22; 3, 24; 4, 38; 5, 16; i. e., shift to right
		10/20	7,000	..	..	..	...	..	5.0		
		10/30	8,000								
		11/ 3	9,400	..	..	..	...	..	...	..	Evac. to Eng. 11/9
19. C.	12/ 1	12/ 6	6,100	76	20	4	...	..	4.5	..	Died 12/8; early br. pneu.
20. K.	....	12/ 9	5,600	65	28	6	...	1	3.9		
21. H.	11/30	12/ 9	570	10	70	20	...	..	3.6	..	Severe; coag. time 3 min.
		12/10	1,400	20	64	12	...	4	3.5	..	Coag. time 7 min.; no skein cells
		12/11	2,075	52	23	12	...	13	3.5	..	Died 12/12; much br. pneu. at necropsy
	1918	1918									
22. E.	1/23	1/28	12,700	84.5	9	6.5	...	..	5.0	..	Shift of Arneth scale to left
		1/30	16,400	80	12	8	2	..	...	..	Died 2/1 br. pneu.
23. S.	3/11	3/13	11,400	..	..	..	...	..	...	..	Mild; evac. 3/24
24. T.	3/11	3/13	8,400	..	..	..	...	..	...	..	Mild; evac. 3/16
25. C.	3/12	3/13	12,400	..	..	..	...	..	4.5	..	Mild; evac.
26. A.	3/12	3/13	12,800	..	..	..	...	..	...	..	Mild; no burns; evac. 3/26
27. S.	3/12	3/13	7,600	..	..	..	...	..	4.4	..	Mild; no burns
28. M.	3/12	3/13	14,000	..	..	..	...	..	...	..	Moderate; sl. burns; evac. 3/23
29. S.	3/12	3/13	18,800	..	..	..	...	..	...	..	Moderate; no burns; evac. 3/16
30. B.	3/12	3/13	12,200	..	..	..	...	..	...	..	Mild; no burns; evac. 3/16
31. B.	3/12	3/13	16,800	..	..	..	...	..	...	..	Moderate; much cough; evac. 3/16
32. K.	3/12	3/13	7,200	..	..	..	...	..	...	..	Moderate burns; evac. 3/26
33. J. T. S.	3/12	3/13	19,400	..	..	..	...	..	...	..	Severe; bad cough; died next day
34. G.	3/12	3/13	17,800	..	..	..	...	..	...	..	Severe; bad cough
		3/14	13,200								
		3/15	11,400	..	..	..	...	..	4.7	..	Now has br. pneu.
		3/17	3,200	84	4	10	...	2	...	..	Arneth: 1, 2; 2, 18; 3, 32; 4, 26; 5, 22; died 3/19 br. and lob. pn.

BLOOD COUNTS OF GASSED PATIENTS—*Continued*

Case		Date Gassed	Date of Examination	Lots	Differential Count, per Cent.					R. B. C. in Mill.	Per Cent. Hb.	Miscellaneous
					Polymorphonuclears	Small Lymphocytes	Large Lymphocytes and Trans.	Eosinophils	Myelocytes			
35.	C.	3/12	3/13	23,000	..	..	..	...	..	5.6	..	Severe D. I.
			3/15	10,000	87	12	1	...	..	8.2		
			3/17	7,600	74	11	13	...	2	...	..	Arneth: 1, 5; 2, 32; 3, 42; 4, 20; 5, 2 (i.e. nor); Arneth: 1, 12; 2, 26; 3, 52; 4, 8; 5, 2 (sl. to left) i.e. bone marrow reacting; pleurisy
			3/20	9,600	57	22	21					
			3/27	18,000								
			3/28	12,700								
36.	G.	3/11	3/13	5,800	..	..	..	...	..	4.2	..	Moderate
			3/15	6,400	65	23	12	...	..	3.8		
			3/22	7,500	71	23	6	...	..	...	..	Improved; evac. to Eng. 3/26
37.	B.	3/11	3/15	11,400	90	4	6	...	..	5.0	..	Moderate
			3/22	8,800	76	18	6	...	..	5.0	..	Improved; evac. to Eng. 3/28
38.	S.	3/12	3/13	17,000	..	..	..	...	..	...	..	Moderate
			3/15	16,000	..	..	..	...	..	...	..	Evac to Eng. 3/20
39.	W.	3/12	3/13	9,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/20
40.	G.	3/12	3/13	20,000	..	..	..	...	..	...	..	Severe
			3/15	14,000	..	..	..	...	..	...	..	Much imp.; evac. to Eng. 3/22
41.	H.	3/12	3/13	14,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/22; improved
42.	R.	3/12	3/15	18,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/28
43.	L.	3/12	3/13	10,000	..	..	..	...	..	...	..	Mild; evac to Eng. 3/16
44.	H.	3/11	3/13	11,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/22
45.	H.	3/11	3/13	16,000	..	..	..	...	..	...	..	Moderate; evac. to Rouen 3/31
46.	N.	3/12	3/13	12,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/16
47.	D.	3/11	3/13	15,000	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/22
48.	S.	3/11	3/13	9,400	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/22
49.	M.	3/11	3/13	14,000	..	..	..	...	..	...	..	Mild; evac. to Eng. 3/22
50.	M.	3/11	3/13	13,600	..	..	..	...	..	...	..	Moderate; evac. to Eng. 3/22
51.	C.	3/13	3/15	20,400	95	3	2	...	..	...	..	D. I.; Arneth: 1, 16; 2, 60; 3, 26; 4, 8 (to left); died 3/20 br. pneu.
			3/20	7,800								
52.	P.	3/13	3/15	13,400	84	8	8	...	..	...	..	D. I.; evac. to Eng. 3/23; impr.
53.	P.	3/13	3/20	12,400	83	9	8	...	..	4.6	..	D. I.; br. and lob. pneu.; died 3/21
54.	F.	4/18	4/20	36,000	91	7	2	...	..	4.1	..	S. I.; delirious
			4/24	14,000	..	..	..	...	..	...	..	Died 4/28 br. pneu.
55.	S.	5/10	5/18	18,000	..	..	..	...	..	...	..	Died 2 hrs. after bleeding, 5/18; cong. and edema; no br. pneu.
56.	W.	5/10	5/18	5,000	..	..	..	...	..	...	..	Severe
			5/20	4,000	..	..	..	...	..	...	..	Died 5/22; ext. br. pneu.
57.	M.	5/11	5/18	14,000	..	..	..	...	..	...	..	D. I.
			5/19	8,500	..	..	..	...	..	...	..	Getting better
			5/28	13,600	..	..	..	...	..	...	..	Developed bro. pneu. and gangrene of lung; died 6/1
			5/29	16,000								
			5/31	8,000								
58.	R.	5/14	6/ 2	8,500	..	..	..	...	..	...	..	Mild
59.	B.	5/20	6/ 2	8,000	..	..	..	...	..	...	..	Mild
60.	F.	5/20	5/30	6,700	..	..	..	...	..	...	..	D. I.; bad pulse; died 5/21 br. pneu.
61.	T.	5/12	5/29	18,000	..	..	..	...	..	...	..	Badly gassed but doing well
			5/31	13,000	..	..	..	...	..	...	..	Bronchopneumonia
			6/ 2	12,000	..	..	..	... (Turk)	..	...	..	Evac. to Eng. 6/2
62.	K.	5/20	5/28	640	10	35	5	(50)	..	...	..	Severe; burns bad; no br. pneu.
			5/29	520	10	60	10	(20)				
			5/30	1,200	4	6	4	(2)	84	...	..	Failing
			5/31	5,400*	1	2	5	(1)	91	...	..	Died same even.; much br. pneu.

* 100 counts.

so far not seemed practical. The so-called bone marrow simulants would hardly seem apropos, with the factory out of gear and an intense stimulus probably already being furnished from the respiratory tract. Blood transfusions or leukocytic injections are impracticable on any extensive scale, and the preparation of extracts of animal leukocytes has not been possible. Any method of treatment, however, that would give promise of replenishing some of the lost protective power of leukocytes would seem well worth trial.

SUMMARY

1. Certain forms of gas poisoning cause, after an initial leukocytosis, a more or less extreme degree of leukopenia.

2. This usually persists even in the presence of bronchopneumonia and is very probably an important contributing factor to the high mortality of severe cases.

3. If the leukocyte count falls below 1,000 per cubic millimeter, a "myelocyte crisis" may bring about a partial amelioration; but in the two cases observed of this kind, this did not serve to protect from a fatal outcome.

4. Lessened blood formation is also indicated by the production of anemia without blast cell formation and diminution in the number of blood platelets. In the earlier stages the coagulation time is decreased, and in the later stages of severe cases it is increased.

Barbed Wire Disease.—Vischer (*Cor.-Bl. f. schweiz. Aerzte*, Sept. 28, 1918) has described a peculiar psychosis of war prisoners in all camps, including those interned as civilian aliens. The prisoners themselves have coined the term "barbed wire disease" for this trouble, and to those affected it is said the barbed wire within which they are inclosed acts as a red rag to a bull. At first after internment there are peculiar reactions due to shutting off of the outside world and mingling in close communion. The phase is one of stimulation. Men argue, become quarrelsome and envious, egosim is fostered. There is a rage for games. Gradually the picture changes to one of depression. Especially among the more finely organized, a state of apathy develops. One is no longer able to concentrate on anything. Even music becomes undesirable. The mental state resembles in some ways the so-called cafardism which was first noted before the war in the French foreign legionaries, and thus perhaps light is thrown on the motivation of that mysterious affection. Sleep is disturbed by dreams and there is an abnormal sensitiveness to sounds. Only a small percentage remain immune. The barbed wire acts throughout as the badge and symbol of servitude. The part played by the wire appears to be shown by the fact that prisoners who work in small squads in the open under guard do not develop the disease.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JANUARY 4, 1919

PREHISTORIC SURGERY

The modern science of paleopathology, which is destined to throw new light on old diseases,[1] lost one of its most earnest devotees in the untimely death of Sir Armand Ruffer at the Saloniki front. One of the last of his communications, a contribution to the debated subject of prehistoric trephining, has been published by Lady Ruffer.[2] Although the discovery of the first trephined, prehistoric skull dates from 1685, and numerous examples of this operation, which was frequently performed in Neolithic times in western Europe, have come to light in more recent years, the intent and procedure of this form of surgical intervention are by no means clear.

According to one widely held view of this prehistoric surgery, the trephining operation was first performed from time immemorial on sheep for the relief of "staggers"; and, later, man extended the application of the veterinary method to his own species. The indications are presumed to have been severe and persistent headaches of unknown cause that demanded relief, or fractured bones that presented splinters for removal. Ruffer concludes that the theory of the veterinary origin of trephining is based on pure hypothesis in support of which no facts are known.

It has also been suggested that postmortem operations on the skull were made with the object of obtaining pieces of cranial bones to be used as amulets. There can be no doubt that bone fragments detached as rondelles by trephining were perforated and worn. Powdered cranial bones were supposed, according to Ruffer, to possess curative properties in the remote past and up to the middle ages, and rondelles were certainly worn as ornaments or amulets as late as Gallic times. However, despite the fact that evidence of repair is absent in many of the trephined skulls, the cicatrization is so good in many cases that the operation must be assumed to have been made during life. The holes are usually described as being fairly regular and more or less ellipsoid, measuring on an average about 4 cm. (1½ inches) across. The borders are sharp, oblique, and beveled from without inward; and often compact surfaces produced by the growth of fresh bone prove that the patient must have survived the operation for a long time. Multiple trepanations have been found.

Observations on present day primitive peoples, such as are recorded in the studies of Lucas-Championnière,[3] indicate that trephining is practiced by the Kabyles and New Caledonians, sometimes for accidents, more often for persistent headaches. No fresh evidence has been obtained to show that a religious significance is attached to the operation. Perhaps the best probability is represented by the view that originally the relief afforded by the removal of splinters from a fractured skull suggested an operation in cases in which the pain was due to hidden disease. According to this theory, surgeons may be said to have practiced cerebral decompression as early as Neolithic times.

1. The Antiquity of Disease, Current Comment, J. A. M. A. **71**:1829 (Nov. 30) 1918.

2. Ruffer, Armand: Studies in Paleopathology: Some Recent Researches on Prehistoric Trephining, J. Path. and Bacteriol. **22**: 90, 1918.

3. Lucas-Championnière: La trépanation préhistorique, Paris, 1878: Les origines de la trépanation compressive, Paris, 1912.

DEATHS OF PHYSICIANS IN 1918

During 1918, the deaths of 2,616 physicians in the United States and Canada were noted in THE JOURNAL. On an estimate of 155,000 physicians, this is equivalent to an annual death rate of 16.88 per thousand. For the sixteen previous years the mortality rates were: 1917, 14.37; 1916, 14.08; 1915, 15.71; 1914, 14.41; 1913, 14.64; 1912, 14.13; 1911, 15.32; 1910, 16.96; 1909, 16.26; 1908, 17.39; 1907, 16.01; 1906, 17.20; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. The average annual mortality for the period from 1902 to 1918, inclusive, was, therefore, 15.61 per thousand.

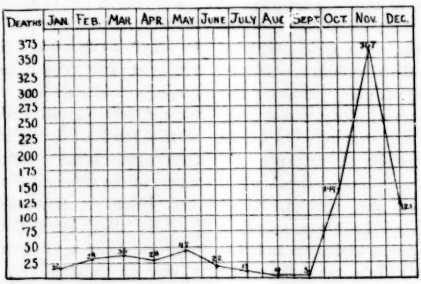
Ages.—Of the decedents, 174 were under 30; 455 between 31 and 40; 449 between 41 and 50; 474 between 51 and 60; 463 between 61 and 70; 358 between 71 and 80; 160 between 81 and 90, and 18 between 91 and 100.

Causes of Death.—There were 241 deaths assigned to general diseases; 261 to diseases of the nervous system; 331 to diseases of the circulatory system; 822 to diseases of the respiratory system; 98 to diseases of the digestive system; 134 to diseases of the genito-urinary system; 318 to senility; 39 to suicide; 89 to accident; 15 to homicide, and 69 after surgical operations. Among the principal assigned causes of death are: pneumonia-influenza, 428; pneumonia, 375; senility, 318; heart disease, 212; cerebral hemorrhage, 200; nephritis, 90; accident, 89; surgical operation, 69; malignant disease, 68; tuberculosis, 60; in battle, 53; suicide, 39; arteriosclerosis, 36; angina pectoris, 32; from disease overseas, 31; septicemia and diabetes, each 29; meningitis, 23; uremia, 22; appendicitis, 16;

myocarditis, homicide, anemia and dilatation of the heart, each 15; cirrhosis of liver, 14; kidney disease (unclassified); 13; gastritis, 11, and many other diseases less than 10.

Influenza-Pneumonia.—The most notable factor in the deaths of the year is the enormous increase in deaths from pneumonia, and especially from those from pneumonia following influenza. During the years from 1902 to 1917, inclusive, the percentage of deaths from pneumonia to the total deaths varied from 5.62, the low mark, in 1914, to 9.47, the high mark, in 1916. With the opening of the year 1918, however, there was an increase in the deaths from pneumonia, so that for the first nine months of the year the percentage was 12.5. The enormous increase occurred in the last three months of the year, which brought the percentage of deaths from pneumonia and influenza for 1918 up to 30.69, an unprecedented mortality.

Accident.—The causes assigned for the 89 deaths from accident were: automobile, 24; automobile-railway (grade crossing), 16; falls, 10; railway, 8; poison, 4; in conflagrations, drowning, sunstroke and unclassified accidents, each 3; burns, injuries by animals and explosion, each 2; and roentgen-ray burns, inhalation of poisonous gases, fracture, freezing, lightning, starvation, firearms, injuries in mine, crushing and asphyxia, each one. The 39 physicians who ended their lives by suicide selected the following methods: firearms, 20; poison and cutting instruments, each 6; strangulation, 3; asphyxia, drowning, jumping from high places, and unclassified, each 1. Of the 15 homicides, 11 were due to firearms; 3 to causes not stated, and one was due to cutting instruments.



Deaths of physicians from influenza and pneumonia during 1918.

Military Service.—During the year, one physician died who had served in the Mexican War; 165 were veterans of the Civil War, and of these, 37 had followed the fortunes of the Confederacy, and 44 had been medical officers of United States Volunteers. The Medical Corps of the Army lost 253 officers; 13 had been contract or acting assistant surgeons. The Navy lost 35 medical officers and 4 acting assistant surgeons; the Public Health Service, 10; the Indian Service, 5, and the organized militia, 33, of whom 5 had attained the grade of Surgeon-General.

Civil Positions.—Of those who died, 2 had been members of Congress; one, an ambassador; 2, consuls; 4, members of state senates; 24, members of the lower houses of legislatures; and 33 had been mayors; 20 had been members of state boards of health; 10 of state boards of medical examiners, and 7 members of other state boards.

Association Fellowship.—Of the 994 Fellows of the American Medical Association who died during 1918, one had been Vice President; one, a member of the House of Delegates; 2, members of the Committee on Medical Legislation; one, a member of the Judicial Council; 5, section officers, and one a member of the Board of Trustees.

THE HEALTH OF THE ARMY

The report of the Surgeon-General of the Army covering the calendar year of 1917 and the fiscal year to June 30, 1918, has just appeared. Naturally it is a much larger volume than any previous report. It is divided into eight sections with some 181 general tables, twenty-one special tables, ten international tables and seventy-three charts. This is a compilation of data which required great effort and adequate organization. In the letter of transmittal, special attention is called to the three training schools for medical officers which aided in rapidly building up an efficient medical department for the great army created by the war. The health of the Army both at home and overseas was excellent, and the death rates probably lower than in any other similar body of troops in the history of warfare. As an evidence of the way in which typhoid fever has been eliminated from the Army, it is stated that there were 297 cases and twenty-three deaths during the year 1917. If the morbidity had been as great as during the Spanish-American War, there would have been 136,000 cases and 13,600 deaths. It was seen before the troops had been mobilized that the acute respiratory diseases would be the greatest factors in morbidity and mortality, and every possible effort was made to prevent their incidence. The rapid mobilization, however, made it impossible to secure the desired results. Pneumonia, either primary or secondary, caused approximately 65 per cent. of the deaths from all causes in the troops in the United States in 1917. A large number of the pneumonias have been charged to measles, which was epidemic during that year.

The second section is a comparative study of the health of our army from 1820 through 1917. This includes a comprehensive analysis of the health of the Army according to race, location, age, length of ser-

vice and rank, and a good analysis of the causes of death. It is interesting to note that in 1916 there were twenty-two causes of death, and in 1917 only eight, each of which produced at least 1 per cent. of all the deaths of the year. Of the eight leading causes of death in 1917, five are of an epidemic character, and measles is the most important. In 1916, measles is eleventh on the list of causes of death, that is, 3.3 per cent., as contrasted with first place and 2[illegible].9 per cent. in 1917. Most of the deaths from measles were, of course, from the complicating pneumonia.

A large section of the book is concerned with the mobilization of the Army. Our readers are already familiar with the tremendous growth of the Medical Department. Today this department alone is larger than was the entire army at the outbreak of the Spanish-American War. In this section is included a description of each of the great camps and cantonments, with a discussion as to health conditions and the factors especially related to those camps. Here also is described the organization of the base hospitals in the cantonments. The fourth section concerns the health of the Army by countries in which different units were located, and the fifth section, special diseases in the Army, with numerous charts showing how measles, the pneumonias, venereal diseases and other infections were brought under control. A special section is devoted to a consideration of fractures.

The sixth section, on the activities of the Medical Department, describes in detail the organization and the work of each department of the Army, including the handling of infectious diseases, sanitation and construction of hospitals, the work of the gas division, the work of the Army medical laboratory, and the special divisions in the Surgeon-General's Office. Section H is the financial report, showing how more than $100,000,000 was spent.

To those who have been interested in tracing the development of the Medical Department and the great service it has rendered to the government, the report will be an interesting and enlightening document. It should be of permanent value to hygienists, sanitarians and to others interested in the control of disease.

PROPHYLACTIC INOCULATION AGAINST INFLUENZA

Experiment is the life of natural science. The primary condition of progress is that one must be eternally questioning, testing, trying out new ideas and methods—in the old-fashioned phrase, "interrogating Nature." The successful investigator ceaselessly observes, theorizes and formulates experiments to verify his hypotheses. To experiment is of the essence of our faith.

As investigators know, however, it is not easy to plan and conduct an experiment in such a way that the results are unambiguous. Even in the purely physical sciences the elimination of all factors except the one whose action we wish to study is not always a simple matter. In the biologic sciences and especially in human medicine, conditions are usually so complex and the multiplicity of factors so great that the study of any particular factor is often fraught with great difficulty. Any one familiar with the history of the numerous attempts made in the past twenty years to use specific and nonspecific serums and vaccines knows of the countless wrecks of well meant endeavor and patient industry that lie high, dry and forgotten on the rocks of fact. No one of us believes for a moment that on this account we should slacken our effort or abate our enthusiasm. The success already achieved in the prophylaxis and treatment of several infectious diseases is enough to spur us on to fresh trials and new modes of experiment.

At the same time we have a right to ask that experiments in this field, where so much is at stake, where our hold on the confidence of the general public is involved, and where self deception is peculiarly liable to occur, be planned and carried out with as much precision and critical acumen as possible, so that proper conclusions may be drawn and the whole matter not left fogged with uncertainty. The trouble with so much of the "evidence" on the use of vaccines for the prevention of influenza—as stated in the recent report of the Committee of the American Public Health Association—is not that it is "contradictory and irreconcilable," but that it is not evidence at all; the pertinent facts are not collected and evaluated in such a way as to constitute solid grounds for either a favorable or unfavorable opinion. That is the real reason why confusion and uncertainty today surround much of the reported work on the prophylactic inoculation against influenza: the data presented are simply too inadequate to permit a competent judgment.

To what extent these considerations apply to an important article[1] presented in THE JOURNAL this week must be decided by each reader for himself. It may be questioned, perhaps, whether the greater receptivity for positive rather than negative results shown in the phrase, "because, after all, the results from prophylactic inoculation must be sufficiently favorable to be apparent under the conditions included in this report," is justified in an inquiry demanding such a rigorously critical attitude as the one in hand. Positive results are certainly more gratifying to the average investigator than negative; all the more reason, therefore, why he should hold himself a little stiffly and be ever on his guard against an uncritical acceptance of a desired fact.

To be more specific, one could wish that definite statements might be made in place of vague and gen-

1. Rosenow, E. C.: Prophylactic Inoculation Against Respiratory Infections, this issue, p. 31.

eral statements, that the readers might be taken more fully into the confidence of the writer with respect to seeing for themselves those data on which he bases his conclusions. When we read: "This difference has been noted in communities in which the incidence and mortality rate were exceptionally high as well as where they were comparatively low," we want to ask: What were the communities and what was the population, what the incidence and what the mortality rate; where and to how many was the vaccine given, and what were actually the results?

It is not quite clear from Rosenow's article just what his position really is with respect to the effect of his vaccine in warding off initial attacks of influenza. Although, at the beginning of the paper, he seems to regard the vaccine as a means of increasing individual resistance to the secondary infections that follow in the wake of the primary influenza, later on, as in referring to the State Hospital for the Insane at Rochester, he attributes to it the virtue of preventing the primary infection.

There are other points of detail about which the curious reader will want further information. He will want to know dates, places, ages and population inoculated and uninoculated; he will want to know something about the clinical basis of diagnosis, the proportion of pneumonias, the conditions of exposure, and especially the measures taken to prevent influenza infection and to prevent the development of pneumonia in each group chosen. To specify only one case: The experience at a Rochester hospital—where fourteen nurses (out of how many?) developed influenza within two days (how many earlier?) prior to the first inoculation (at what period in the epidemic?), and only one case (out of how many possibilities?) developed subsequently during a period of six weeks—might be duplicated, so far as the facts given are concerned, in the experience of other observers using no vaccines whatever. In other words, unless all the cards are on the table, unless we know so far as possible all the factors that may conceivably influence the results, we cannot have a satisfactory basis for determining whether or not the results of prophylactic inoculation against influenza justify the interpretation they have received in some quarters.

A Municipal Poultry Farm.—The health committee of the city of Bradford, England, according to U. S. Consul A. E. Ingram (*Commerce Reports*, Jan. 15, 1918), in May, 1916, established a municipal poultry farm to meet the demands of the hospitals and other medical institutions maintained by the municipality. It is situated on the farm of the Bierley Hall Sanatorium for consumptives, covers 6 acres and comprises about fifty buildings, with 800 birds of the standard egg breeds, and is fully equipped for poultry and egg producing purposes according to the latest scientific ideas. The surplus accumulations of eggs are preserved by the waterglass process. The initial outlay was about $10,000, and it is found that the cost of running the plant will amount to about the same sum annually. It is expected that the egg production will reach 80,000 a year.

Current Comment

"EVIDENCE"

"I have used between 700 and 800 doses of The Cutter Laboratory's Mixed Vaccine-Respiratory Infections as a prophylactic against Influenza, and in not one instance has there been a failure completely to protect the individuals so immunized."

This testimonial heads a postal card distributed widely to physicians by the Cutter Laboratory, which claims that the statement is "by one of San Francisco's best known physicians." The Cutter Laboratory is of the opinion that the statement "is convincing enough to satisfy even the most conservative as to the value of Mixed Vaccine prophylaxis in this class of infections." Let us extend the method of argument:

"I have recomended to 643 of my patients that, as a prophylactic against Influenza, they use a teaspoonful of salt instead of two lumps of sugar in their coffee every morning, and in not one instance has one of these patients come down with the disease."

Then might not the salt producers of the country say that the statement just given, having supposititiously come from one of New York's best-known physicians, is convincing enough to satisfy even the most conservative as to the value of sodium chlorid as a prophylactic in influenza? The science of therapeutics is complex enough at its best. With commercialism dominating the production of therapeutic agents, the likelihood of ever arriving at anything even approximating a true science of therapeutics seems hopeless. If there were as much money to be made in astronomy as there is in pharmacy, there would be a new star discovered every day.

AUTOTOXEMIA

Few physicians ever question the ancient therapeutic axiom, "Bene curat qui bene laxat." The administration of a laxative or cathartic at the onset of an illness constitutes the chief hope of the layman and the auxiliary measure of the physician in effecting a rapid cure. This is based on the assumption that opening up the chief emunctory of the body sweeps out the poisonous products ingested or formed by action of the intestinal flora on nitrogenous food, preventing them from exerting their toxic action on the various organs and tissues of the body. That the symptoms of intestinal stasis and constipation are those of an intoxication or autotoxemia resulting from an absorption from the intestinal tract of the poisonous products of bacterial activity is supposedly so well established as a clinical fact that a host of medicinal agents have been exploited for its relief and several surgical procedures have been devised to expedite the passage of food through the bowel. In short, all measures are designed to prevent a chemical autointoxication resulting from excessive and noxious bacterial activity. Yet Alvarez,[1] on the basis of a critical analysis of the literature on the origin of the symptoms in so-called autointoxication as well as his own experience as a gastro-enterologist,

1. Alvarez, W. C.: Origin of the So-Called Autointoxication Symptoms, this issue, p. 8.

confidently concludes that the symptoms in intestinal stasis and constipation are due not to the absorption of any toxin but rather to a "mechanical distention and irritation of the lower bowel by the fecal masses." According to this investigator, the symptoms of so-called autointoxication result from the altered physiologic activity of other organs and tissues brought about by the stimulation of sensory nerves in a "distended, overactive, or wrongly acting bowel" in a sensitive, and often psychopathic, person. His position is at marked variance with the current chemical theory that an autotoxemia is the cause of the mental and physical manifestations of constipation. And since the treatment will depend on the cause, the medical profession will follow with more than academic interest the experimental development of a thesis so ably defended in this early presentation by one eminently fit to prosecute the work in the clinic as well as in the laboratory. Coincidently, more light will most certainly be thrown on the importance in the normal physiologic economy of man of that vast stream of sensory impulses continually pouring into the nervous system from the abdominal viscera through the interoceptors (Sherrington) so plentifully present along the entire gastro-intestinal tract. These visceral impulses rarely, under normal conditions, come into clear consciousness, and still elicit reflex acts which, in known instances, are of the greatest importance to man. An intensive study of this general visceral system will no doubt reveal facts of interest to the physiologist and of great practical importance to the clinician.

THE LOS ANGELES COUNTY HOSPITAL AND INTERNS

The Los Angeles County Hospital is one of the largest hospitals on the Pacific Coast, having 1,250 beds according to the latest report. Heretofore the requirements for the admission of interns have been sufficiently rigid that only graduates of better grade medical schools have been admitted to the staff. From a recent report, however, there appears to have been a serious change in this respect. Out of twenty-six interns at present in this hospital, eleven are reported as graduates of an osteopathic college, one is a graduate of dentistry, and one holds a diploma from the notorious Oriental University, a "correspondence" institution, at Washington, D. C. It is unbelievable that these interns could have secured their places had they been required to pass a thorough but fair examination, including practical and clinical tests, such as is used in testing the qualifications of interns by other high grade hospitals in the United States. Where high requirements are upheld, not only do the hospitals gain the best qualified interns, but the internships are more eagerly sought after. Any relaxation of requirements, however, by which poorly educated or incompetent graduates could secure internships, would produce the opposite effect. Graduates of high grade medical schools will avoid rather than seek internships in hospitals with easy or no educational requirements. They know that, as a rule, such hospitals are not conducted on a plane that will further their medical training. More particularly, however, they do not wish to be held partly responsible for bad conditions, if not scandals, which are liable to result from incompetence on the part of other members of the intern staff. It is hoped that the conditions at present in the Los Angeles County Hospital are only temporary, due perhaps to a war emergency, and that this otherwise splendid hospital will restore such strict regulations for admission to its intern staff as will not only uphold its reputation and guarantee a continued supply of competent interns but will also provide the best possible care for its patients.

THE 1919 ANNUAL SESSION A VICTORY MEETING

The principal feature at the annual session of the American Medical Association at Atlantic City next June will be the bringing together of medical delegates of the allied governments associated in the world war. It will be a victory meeting in which our confrères from other countries will help to celebrate the victory in which all had a part. It is contemplated that there will be conferences between representatives of the medical departments of the United States government and the foreign delegates relative to the good that may result from the experience of the various countries in medicine and surgery, especially in their military aspects. Undoubtedly deliberations will be held with a view to establishing and maintaining cooperative interallied graduate study and research—a most important subject at the present time. The main thing, however, will be to cement the bonds of an enduring friendship between members of the medical profession of the allied countries. This meeting has the approval of the Secretary of War: it will be semigovernmental in character. Invitations are being sent to the embassies and legations at Washington representing the allied governments. The Board of Trustees appointed a committee to have general charge of this feature. The constituent and component branches of the American Medical Association and the various medical centers undoubtedly will be called on in due time to do their part in extending the courtesies of the profession of the United States to these foreign delegates, as it is proposed that while here they will be given an opportunity of seeing our country.

Habits and Health.—Organized society may purchase the extinction of the malarial mosquito. It may buy the eradication of the yellow fever mosquito, the rat of bubonic plague, the tick of spotted fever, the fly of sleeping sickness, or the louse of typhus fever or of trench fever. Organized society may buy clean, pure water, and it may purchase a successful food inspection. But it cannot buy habits of personal hygiene that produce human health; that defend the individual from disease and postpone his death. It cannot purchase health habits that give the individual resistance to disease, making it harder for him to become sick and easier to recover. It cannot purchase the personal consciousness of individual obligation in the health affairs of the community that is essential to an effective defense of the community health.—T. A. Storey, M.D., Ph.D., on Physical Training.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending December 27, there were in the Medical Corps, 29,098 officers, a decrease of 949 since the previous week. This personnel includes four major-generals, five brigadier-generals, 221 colonels, 521 lieutenant-colonels, 2,462 majors, 9,452 captains and 16,433 lieutenants. There were in active service 28,357, a decrease of 875 since the previous week. Discharges to date include 6,231 officers.

New Medical Officers for Navy

As the result of examinations, held October 30 and 31, at various places throughout the country, of applicants for admission to the Medical Corps of the Navy, 144 officers of the U. S. N. R. F., and those holding temporary commissions were found qualified for appointment in a permanent establishment.

Death and Sick Rates in Army Camps

At present about 200,000 men are being discharged each week from the military service. All these men are given a thorough examination and are not discharged unless they are in as good a physical condition as Army medical treatment can make them. With this rapid diminution in the total number of men, the sick and death rates will inevitably rise, even though the number of sick men is diminishing, because the healthy men are being discharged. On the other hand, improvement in health conditions in all the camps may be expected because sanitary problems will become more simple with the decrease of the number of men in the camps.

Expedition to Turkey for Reconstruction Work

The Committee for Armenian and Syrian Relief it is reported is sending an expedition to Turkey for reconstruction work. Many hospitals are to be rehabilitated and a staff of twenty-five physicians is required. Only native born American citizens are eligible. The expedition will sail about the middle of January. Physicians with hospital experience in medicine and surgery and interested in war reconstruction work should communicate with Dr. George E. Washburn, 238 Commonwealth Avenue, Boston.

Prisoners Released

Hon. Dr. Henri S. Beland, C. A. M. C., St. Joseph de Beauce, Que., a member of the Canadian Parliament, who was in Belgium at the time the war broke out and was a prisoner for three years and was liberated by exchange, spoke regarding his experiences before the Boston Chamber of Commerce, December 12.——Lieut. Bernard J. Gallagher, M. C., U. S. Army, Minneapolis, who has been a prisoner in Camp Villingen, Germany, since March 28, has been liberated and is now in France.

Wounded

Capt. George C. Skinner, M. C., U. S. Army, Cedar Rapids, Iowa, is reported to be under treatment at a hospital in Paris, from wounds received, when a first aid station was bombed by German airplanes.——Capt. Henry B. Beeson, M. C., U. S. Army, Cornell, Wis., is reported to have been seriously wounded.——Lieut. John D. Colson, M. C., U. S. Army, St. Stephen, S. C., is reported to have been seriously wounded.——Lieut. James R. Martin, M. C., U. S. Army, Philadelphia, is reported to have been wounded severely.——Capt. Clifford H. Arnold, M. C., U. S. Army, Ardmore, Pa., is reported to have been wounded severely.——Lieuts. Isaac I. Parsons, M. C., U. S. Army, Media, Pa., and Cornelius T. McCarthy, M. C., U. S. Army, Philadelphia; Capt. Axel W. Swenson, M. C., U. S. Army, Bisbee, N. D., and Lieut. Ralph Emerson Buckley, M. C., U. S. Army, Hazleton, Pa., are reported to have been wounded in action, degree undetermined.

Mentally Defective in the Army

In a statement made to the senate committee on military affairs, December 13, Surgeon-General Ireland of the Army said that the number of mental and nervous cases requiring special treatment among soldiers in camps in this country is 2.5 per thousand. This is slightly above the number of cases in civil life. Among the troops overseas the number is 10 per thousand. Six hospitals abroad are used exclusively for treating these men, each base hospital having facilities for emergency treatment of the mentally defective. An interesting effect on shell-shock patients of the announcement of the armistice was that among 2,500 of these patients 2,100 were restored to normal within a day or two. It was brought out in the hearing that many men among the shell-shock cases had been decorated for extraordinary bravery in battle. The success of the Army medical examiners in keeping mentally defective men out of the service is shown by the fact that among the first 800,000 men examined, only 400 cases developed.

Reserve Officers' Training in Colleges

A large proportion of the 500 educational institutions in the United States which during the past year have devoted part of their efforts to military training of the students will now, under a new arrangement of the War Department, turn their attention to the Reserve Officers' Training Corps. Before the war there were about 115 units of the Reserve Officers' Training Corps in the various colleges. Under the demobilization order these were all abolished, but under the new arrangement about 100 of these are now being reestablished, and 200 applications for new units have been received. An important change under the new order is that the units will be allowed to specialize in training officers for the various corps of the Army, such as Medical Corps, field artillery, etc. Plans are also under way to establish junior units in the secondary schools. City high school corps are already established in Boston, Chicago, Denver and a number of other cities. A large part of the equipment used in the various institutions for the Students' Army Training Corps will be made use of for the Reserve Officers' Training Corps. The administration has been placed in the hands of the Committee on Education and Special Training of the War Plans Division of the general staff.

Proposed Changes in Army Medical Corps

Representative Dyer has recently proposed to amend the national defense act, as follows:

Section 1. That the medical department of the Army shall consist of one surgeon general with the rank of major general, who shall be chief of said department; assistant surgeon generals in the ratio of one-half of one per centum of the total number of officers of the medical department provided by law, the assistant surgeon generals to be equally distributed in the grades of major general and brigadier general of the medical corps, the dental corps, and the veterinary corps authorized by law, the commissioned officers of which shall be citizens of the United States, the enlisted force of the medical department of the Army as now provided by law.

Sec. 2. That commissioned officers of the medical corps below the rank of brigadier general shall be proportionately distributed in the several grades as now provided by law for the medical corps of the Navy.

Sec. 3. That hereafter the President shall be authorized to fill any vacancy that may occur in the commissioned personnel of the permanent establishment of the medical department of the Army of the United States by selection from the medical officers of the United States Army of not less than one year's continuous active service: Provided, That the selection shall be upon the efficiency rating and satisfactory examination of the officer, and where two or more officers are of equal rating selection will favor the one of longest service in the United States Army, Volunteer Army, National Guard, officers' reserve corps, or National Army: Provided further, That the officers so selected will be commissioned without loss of rank in the permanent establishment of the medical department of the Army of the United States, and such officers so commissioned shall be entitled to all pay, promotion, and allowances of officers of like rank in the permanent establishment of the Army of the United States, excepting that the rate of retirement pay shall be one-thirtieth of the present retirement pay, as now prescribed by law, for each year's service as enlisted man; or commissioned officer, or the total of such services in the United States Army, Volunteer Army, National Guard, officers' reserve corps, National Army, dental corps, dental reserve, or enlisted personnel in the Army or National Guard in any of the various departments of the Army of the United States: And provided further, That at the age now prescribed by law for retirement an officer to receive retirement pay shall have not less than 15 years' service in any or all branches enumerated in this act: And provided further, That the provisions of this act shall in like manner govern the filling hereafter of all vacancies in the dental corps of the United States Army: And provided further, That the ratio of dental surgeons now and hereafter commissioned shall be two dental surgeons per thousand of enlisted strength of the Army of the United States: And provided further, That all laws or parts of laws, in so far as they are incensistent with the provisions of this act, are hereby repealed.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

ALABAMA

Hartzelle—White, A. M.
Tuskegee—Collier, G. B.

ARKANSAS

Rosboro—Baker, W. P.

CALIFORNIA

Eureka—Falk, C. O.
Los Angeles—Ragland, D. C.
Smith, W. H.
Williams, E. H.
Oakland—Dupuich, L. R.
Porter, W. S.
Walton, G. E. P.
Richmond—Abbott, U. S.
San Diego—Pickard, R. J.
San Francisco—Dannenbaum, S. R.
Jellinek, E. O.
Wymore, W. W.

COLORADO

Colorado Springs—Peters, A. H.
Denver—Powers, C. A.
Roberts, W.
Julesburg—Ewing, G. F.
Pueblo—Williamson, A. R.

CONNECTICUT

Derby—Sharpe, E. T.

DISTRICT OF COLUMBIA

Washington—Cox, O. C.
Schneider, A. L.

FLORIDA

Arcadia—Ford, J. A.
Key West Barracks—Porter, J. Y., Jr.
Princeton—Byrd, H.
Tampa—Coon, G. B.

GEORGIA

Atlanta—Campbell, W. E., Jr.
Roberts, S. R.
Bainbridge—Ehrlich, M. A.
Baxley—Mercer, J. E.
Columbus—Cooke, W. L.

ILLINOIS

Chicago—Austin, R. S.
Churchill, F. S.
Findlay, E. K.
Fraider, F. F.
Kershaw, R. D.
Manning, J. L.
Vernon, H. W.
Glencoe—Reinsch, F.
Granville—Wilson, H. M.
Maywood—Coffman, S. W.
Normal—Behrendt, E. A.
Ridgefarm—Dice, H. F.

INDIANA

Crawfordsville—Schenck, F. O.
Hammond—Nichols, W. E.
Hebron—Titus, J. M.
Indianapolis—Caraway, S. H.
La Fontaine—Higgins, J. B.
Lake—Thompson, A. B.
Reynolds—Williams, A. C.
Versailles—Coomes, M. J.

IOWA

Cherokee—Donohoe, G.
Des Moines—Luginbuhl, C. B.
Price, J. T.
Gladbrook—McDowall, G. T.
Jefferson—Black, J. R.
Monona—Everall, B. B.
Spencer—Voight, B. J.
Winfield—McConnaughey, J. T.

KANSAS

Kansas City—Faust, J. W.
Wellington—Netherton, F. F.

KENTUCKY

Adairville—Margan, E. C.
Centerville—Linville, S. M.
Covington—Davis, J. A.
London—Smith, J. I.
Louisville—Bruce, E. T.
Moss, J. W.
Raywick—Mitchell, O. A.
Westview—Biggers, J. A.

LOUISIANA

Abbeville—Eldredge, H. A.
Melrose—Kelly, J. L.
New Orleans—Gladden, A. H.

MAINE

North Berwick—Brown, L. H.

MARYLAND

Baltimore—Kahn, M. R.
Rigby, C.
Midland—Holdsworth, J. C.

MASSACHUSETTS

Boston—Papoulacos, P. M.
Tobey, G. L., Jr.
Williams, D. L.
Concord—Shaw, F. K.
Gardner—McAuslan, J. L.
Haverhill—Ruel, J. A.
Lynn—Fraser, W. L.
Malden—Holden, N.
New Bedford—La Riviere, E. G.
Taunton—MacDonald, D. F.
Webster—Bragg, L. R.
West Bridgewater—Le Lacheur, E. S.

MICHIGAN

Lansing—Owen, A. E.
Ludington—Force, W. H.
Marquette—Drury, C. P.

MINNESOTA

Brainerd—Evert, J. A.
Duluth—McKillip, W. J.
St. Paul—Lembke, C.
Zander, C.

MISSISSIPPI

Collins—Blount, W. N.
Rodney—Smith, D. S.

MISSOURI

Bronson—Mitchell, G. B.
Centralia—Hickerson, J. T.
Ebenezer—Potter, A. E.
Glasgow—Hawkins, W. R.
Neosha—Roscherry, E. M.
Poplar Bluff—Eure, J. B.
St. Joseph—McDonald, F. R.
St. Louis—Eyerman, E. H.
Suggett, O. L.
Warrenton—Ebeling, A. W.

MONTANA

Bearcreek—Siegfreidt, J. C. F.
Butte—McCarthy, P. H.

NEBRASKA

Lincoln—Morrill, R. M.

NEW JERSEY

Newark—Hagerty, J. F.
Tansey, W. A.
Paterson—Holmes, T. J. E.
Red Bank—Magee, D. M. P.

NEW YORK

Albany—Bibby, F. N.
Brooklyn—Bierwirth, J. C.
Buffalo—Carpenter, A. D.
Tompkins, C.
Central Islip—Jenkins, N. B.
Haverstraw—Hirsch, J. H.
New York—Booxbaum, M. M.
Bull, C. G.
Dunning, H. S.
Fitch, W. E.
Hoag, D. E.
Lambert, R. A.
McAuliffe, D. A.
McConnell, R. H.
Reu, L.
Schaffer, J. M.
Rochester—Edwards, W. D.
West Rochester—Leary, M. E.

NORTH CAROLINA

Murphy—Adams, N. B.
Raleigh—Payne, L. E., Jr.

NORTH DAKOTA

Park River—Weed, F. E.

OHIO

Cincinnati—Baker, E. E.
Johnston, S.
Columbus—Miller, G. W.
Dalton—Wenger, G. N.
Dayton—Slusser, H. A.
Dustin—Scott, T. H.
Galion—Murr, P. A.
Granville—Cook, E. P.
Massillon—Williams, J. S.
Morrow—Vance, R. H.
Mount Vernon—Workman, I. S.
Murray—Hayman, E. H.
New Madison—Kimmel, O. P.
Ottawa—Owens, O. J.
Ridgeville Corners—Slosser, D. J.
Springfield—Auston, H. H.
Tiffin—Leister, R. B.
Miller, B. R.
Toledo—Faber, C.
LaSalle, J. J.
Van Wert—Flemming, R. C.

OKLAHOMA

Cherokee—Lile, H. A.
Drumright—Reynolds, S. W.
Faxon—Dolson, F. R.
Idabel—Moreland, J. T.
Stillwell—Evans, S. R.
Supply—Goddard, R. K.
Tulsa—Pigford, A. W.
Spitz, E. A.
Wright, W. E.

PENNSYLVANIA

Adamsburg—Dickson, G. M.
Indiana—St. Clair, F. W.
Meadville—McPate, J. C.
Philadelphia—Boggs, J. W.
Freeman, F. E.
Gans, S. L.
Riesman, D.
Weaver, A. K.
Pittsburgh—Hieber, H. M.
Kneedler, G. C.
Stahlman, T. M.
Ryal—Owsley, F. D.
Scranton—Davis, E. R.

SOUTH CAROLINA

Columbia—Baggott, B. H.
Eastover—Stuart, G. C.
Fountain Inn—Shaw, H. L.
Lamar—Boykin, G. L.
St. George—Judy, W. S.

SOUTH DAKOTA

Howard—Collins, W. P.
Lead—Fleeger, R. B.

TENNESSEE

Bells—Eason, W. B.
Memphis—Haase, M.
Stout, L. H.
Nashville—Hall, J. E.
Litterer, J. H.

TEXAS

Blanco—Kleifeth, F. H.
Charlotte—Irwin, C. M.
Dallas—Clay, H.
El Paso—Hunter, J. R.
Fort Worth—Dreiss, C. A.
Houston—Parker, G. D.
Plantersville—McMillan, C. M.
Fort Arthur—Autrey, A. R.
San Antonio—Combe, F. J.

WASHINGTON

Kent—Heg, E. E.
North Yakima—Reineke, C. A.

WEST VIRGINIA

Huntington—Gerlach, E. B.
Kingwood—Rudasill, D. J.
Morgantown—Ehlert, E.
Stonestreet, W. W.

WISCONSIN

Clintonville—Finney, W. H.
Milwaukee—Patek, A. J.
Seelman, J. J.
Mishicot—Stueck, A. F.
North Fond du Lac—Pullen, A. J.
White Hall—Hutchins, S. E.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Army Medical School, from Camp Crane, Capt. M. E. SHERER, Childersburg.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. C. C. WILEY, Birmingham.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. J. U. REAVES, Mobile.

To Fort McHenry, Md., from Fort Oglethorpe, Major C. T. POLLARD, Montgomery.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. J. A. USSERY, Courtland.

To Long Beach, N. Y., from Camp McClellan, Lieut. G. LOTTERHOS, Birmingham; from Fort Oglethorpe, Lieut. L. C. ELLIS, Florence.

To Walter Reed General Hospital, D. C., from Camp Lee, Lieut. W. J. ROBBINS, Ensley.

Arkansas

To Camp Pike, Ark., from Fort Oglethorpe, Lieut. E. M. THOMPSON, Fort Smith.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. A. H. COOK, Hot Springs.

To Chicago, Ill., from Fort Riley, Lieut. C. WALLIS, Arkadelphia.

To Mineola, N. Y., Hazelhurst Field, from Hoboken, Lieut. T. E. RHINE, Thorton.

To Whipple Barracks, Ariz., from New Haven, Capt. I. H. JEWELL, Paris.

California

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. G. R. LATON, Los Angeles.

To Camp Fremont, Calif., base hospital, from Camp Dix, Major C. G. TOLAND, Los Angeles.

To Camp Kearney, Calif., from Fort Oglethorpe, Lieut. H. A. TODD, Visalia.

To Charleston, S. C., from the Surgeon-General's Office, Major L. F. LUCKIE, Los Angeles.

To Fort Des Moines, Iowa, from Camp Wadsworth, Capt. C. A. WARNER, Ontario; from Camp Wheeler, Lieut. C. S. YOUNG, Los Angeles.

To Fort MacArthur, Calif., from Fort Oglethorpe, Lieut. F. C. SWEARINGEN, Pomona.

To Newport News, Va., from Camp Lee, Major C. E. MORDOFF, San Francisco; Capt. A. F. BRADSHAW, Orange; Lieuts. A. A. McCLURKIN, Los Angeles; A. E. McDOWELL, Palo Alto.

To San Francisco, Calif., Presidio, from New Haven, Major F. P. GAY, Berkeley. As orthopedic surgeon, from Camp Fremont, Lieut. J. M. SMITHWICK, Byron Hot Springs.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Capt. C. A. BELL, Santa Barbara.

The following order has been revoked: *To Camp Kearney, Calif.*, from Fort Oglethorpe, Capt. B. G. PINKERTON, Los Angeles.

Canal Zone

The following order has been revoked: *To Fort McPherson, Ga.*, Lieut. L. WENDER, Corozal.

Colorado

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. W. H. STRATHMANN, West Toledo.

To Camp Gordon, Ga., base hospital, from Camp Sherman, Lieut. G. L. SHARP, Colorado Springs.

To Denver, Colo., from Camp Raritan, Capt. W. T. LITTLE, Canon City.

To Fort Logan, Colo., from Camp MacArthur, Major R. L. DRINKWATER, Denver.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Boston, Capt. C. G. McEACHERN, Denver.

To West Baden, Ind., from Camp Sevier, Capt. C. S. MORRISON, Colorado Springs.

Connecticut

To Army Medical School, from Fort Oglethorpe, Capt. T. F. BEVANS, Waterbury; from Walter Reed General Hospital, Major H. F. STOLL, Hartford.

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. J. C. ROWLEY, Hartford.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. C. D. DEMING, Hartford.

To Fort Ontario, N. Y., from Camp Greene, Capt. F. E. WILSON, Hartford.

To Hoboken, N. J., from Camp A. A. Humphreys, Capt. W. R. MILLER, Southington; from Fort Oglethorpe, Capt. E. R. KELSEY, Winsted.

To Williamsbridge, N. Y., from Camp Lee, Capt. F. C. HYDE, Greenwich.

The following order has been revoked: *To Camp Upton, N. Y.*, from Fort Oglethorpe, Capt. J. D. GOLD, Bridgeport.

District of Columbia

To Camp Holabird, Md., as camp surgeon, from Walter Reed General Hospital, Lieut.-Col. J. E. Hall.

To Carlisle, Pa., from Washington, Col. F. R. KEEFER.

To Long Beach, N. Y., from Camp McClellan, Lieut. C. B. CONKLIN, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Rochester, Minn.*, Mayo Clinic for instruction, and on completion *to his proper station*, from Walter Reed General Hospital, Capt. L. P. BELL, Washington.

To Washington, D. C., Surgeon-General's Office, from Eastern Department, Lieut. W. J. G. THOMAS, Washington.

Florida

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut R. O. COOLEY, West Palm Beach.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Wheeler, Lieut. W. H. WATSON, Lakeland.

Georgia

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Lieut. C. B. BAILEY, Hawkinsville.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. H. B. BRADFORD, Atlanta.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. B. DANIEL, Cordele.

To Camp Hancock, Ga., from Camp Wheeler, Major O. H. STANLEY.

To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Lieut. R. F. WILSON, Atlanta.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. M. S. RICHARDSON, Cedartown.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. J. R. McMICHAEL, Quitman.

To Corpus Christi, Texas, from Fort Oglethorpe, Lieut. T. STARR, Calhoun.

To Fort Benjamin Harrison, Ind., from Camp Sevier, Lieut. A. G. DE LOACH, Atlanta.

To Fort Bliss, Texas, base hospital, from Fort Oglethorpe, Capt. R. P. AYCOCK, Monroe.

To Fort McPherson, Ga., from Camp McClellan, Major J. F. DENTON, Atlanta; from Walter Reed General Hospital, Capt. O. L. MILLER, Atlanta.

To Hoboken, N. J., from Camp Meade, Lieut. R. L. RHODES, Augusta.

To Newport News, Va., from Fort Oglethorpe, Lieut.-Col. W. H. RICHARDSON.

To Otisville, N. Y., from Fort Oglethorpe, Lieut. J. A. PRICE, Milledgeville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Gordon, Major F. H. PETTERS.

The following order hsa been revoked: *To Chicago, Ill.*, from Fort Oglethorpe, Capt. I. H. ADAMS, Macon.

Illinois

To Americus, Ga., Souther Field, as flight surgeon, from West Point, Miss., Capt. D. R. SCOTT, Macomb.

To Army Medical School, from Camp Pike, Lieut. J. C. SMALL, Chicago; from Fort Oglethorpe, Lieut. W. A. GROSS, Chicago.

To Camp Devens, Mass., from Lakewood, Lieut. C. M. BACON, Chicago.

To Camp Grant, Ill., as tuberculosis examiner, from Camp Crane, Lieut. J. SCHLESINGER, Oak Forest.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. R. W. E. SPRENG, Chicago.

To Camp Hancock, Ga., from Camp Lee, Capt. E. A. OLIVER, Chicago.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. R. C. CUPLER, Chicago.

To Camp Logan, Texas, from Fort Oglethorpe, Capt. G. OSBORNE, Chicago. *To examine the command* for nervous and mental diseases, from Camp Pike, Lieut. D. D. CAMPBELL, Chicago.

To Chicago, Ill., from Fort Riley, Lieuts. J. E. BROOKS, B. E. ELLIOTT, A. H. FERGUSON, M. J. SILVER, Chicago; C. V. WINSETT, Prophetstown.

To Columbus Barracks, Ohio, from Fort Oglethorpe, Capt. A. F. KAESER, Highland.

To Fort Bayard, N. M., from New Haven, Capt. F. M. WOOD, Chicago; from San Antonio, Lieut. R. W. DUNHAM, Chicago.

To Fort McHenry, Md., from Camp Meade, Lieut. O. L. EDWARDS, Roodhouse; from Camp Wheeler, Capt. C. H. SOLOMON, Chicago.

To Fort Sheridan, Ill., from Camp Shelby, Capt. E. B. FOWLER, Chicago; from Fort Oglethorpe, Major E. W. RYERSON, Lieut. W. WILLIAMS, Chicago.

To Hoboken, N. J., from Camp Meade, Capt. C. B. RIPLEY, Galesburg.

To Long Beach, N. Y., from Camp McClellan, Lieut. A. N. MUELLER, Rock Island; from Camp Upton, Lieut. W. I. GREEN, Sumner; from Fort Oglethorpe, Capt. M. M. PORTIS, Chicago; Lieuts. D. M. LITTLEJOHN, Pana; G. B. BORMANN, Waukegan; from New Haven, Capt. H. H. BAY, Chicago.

To West Baden, Ind., from Fort Oglethorpe, Lieut. J. S. BERKOWITZ, Chicago.

The following orders have been revoked: *To Camp Bowie, Texas*, from Camp Beauregard, Lieut. J. F. KUCERA, Chicago. *To Camp Crane, Pa.*, from Hoboken, Capt. G. B. BUSHEE, Arlington. *To Camp Grant, Ill.*, from Fort Oglethorpe, Lieut. F. R. BUTTERFIELD, Chicago. *To Chicago, Ill.*, for instruction, from Camp Crane, Lieut. S. F. KUBALA, Chicago. *To Fort Benjamin Harrison, Ind.*, from Fort Oglethorpe, Lieut. G. S. BETTS, Banner. *To Fort Ethan Allen, Vt.*, from Richmond, Capt. A. T. EIDE, Chicago. *To Hoboken, N. J.*, from Camp Devens, Capt. W. P. MacCRACKEN, Chicago. *To Pittsburgh, Pa.*, from Lakewood, Capt. S. R. CATLIN, Rockford.

Indiana

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. E. E. HEATH, Napoleon.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. F. H. GREEN, Rushville.

To Charleston, S. C., from West Baden, Major E. R. ROYER, North Salem.

To Chicago, Ill., from Fort Riley, Lieut. R. J. D. PETERS, Indianapolis.

To Fort Benjamin Harrison, Ind., from Camp Lee, Capt. F. E. TERFLINGER, Logansport.

To Fort Riley for instruction, Lieut. G. W. KOHLSTAEDT, Indianapolis.

To Hoboken, N. J., from Camp Dix, Capt. B. W. CHIDLAW, Hammond; from Camp Upton, Capt. A. L. BREMKAMP, Richmond; Lieut. H. E. GOWLAND, Valparaiso.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. H. W. COX, Indianapolis.

To Newport News, Va., from Camp Lee, Capt. H. H. TALLMAN, La Paz.

To Waynesville, N. C., from Fort Oglethorpe, Lieut. F. M. RUBY, Union City.

To West Baden, Ind., from Fort Oglethorpe, Lieut. E. T. EDWARDS, Vincennes.

The following orders have been revoked: *To Fort Benjamin Harrison* for instruction, from Camp Shelby, Capt. H. G. FLEMING, Anderson. *To Lakewood, N. J.*, for instruction, from Camp Crane, Lieut. V. GORDON, Blountsville.

Iowa

To Camp Sheridan, Ala., from Camp Wheeler, Capt. G. R. HILL, Charter Oak; base hospital, from Fort Oglethorpe, Lieut. B. S. BARNES, Shenandoah.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. H. G. MOERSHEL, Homestead.

To Fort Bayard, N. M., from San Antonio, Capt. L. L. CRAVEN, East Peru.

To Fort Des Moines, Iowa, from Washington, Capt. G. C. SKINNER, Cedar Rapids.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. R. E. PECK, Davenport.

To Fort Sill, Okla., base hospital, from Fort Riley, Lieut. C. E. LOWREY, Centerville.

To Hoboken, N. J., from the Surgeon-General's Office, Major H. C. PARKER, Dubuque.

To Newport News, Va., from Camp Lee, Lieut. B. HOUSTON, Nevada.

The following order has been revoked: *To Hoboken, N. J.*, from Camp Devens, Capt. M. A. HEALY, Boone.

Kansas

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. H. R. SCATES, Baxter Springs.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. W. G. BOUSE, Centralia.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. O. R. BRITTAIN, Salina.

Kentucky

To Camp Benning, Ga., from Fort Oglethorpe, Capt. J. R. MEEK, Covington.

To Camp Dodge, Iowa, base hospital, from New Haven, Lieut. S. J. SMOCK, Glasgow.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. I. T. FUGATE, Louisville.

The following order has been revoked: *To Walter Reed General Hospital*, from Camp Colt, Lieut. G. L. THOMPSON, Lovelaceville.

Louisiana

To Biltmore, N. C., from Fort Oglethorpe, Lieut. I. B. ROUGON, Shreveport.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. O. P. DALY, Jr., Lafayette.

Maine

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. M. P. HAMBLETON, Augusta.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. J. O. PIPER, Solon.

Maryland

To Army Medical School, from Camp Pike, Lieut. T. M. RIVERS, Baltimore.

To Boston, Mass., from Fort Oglethorpe, Lieut. E. H. HEDRICK, Baltimore.

To Camp Raritan, N. J., from New Haven, Capt. E. J. LEOPOLD, Baltimore.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. H. M. BANKS, Baltimore.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. H. J. WALTON, Baltimore.

To Cape May, N. J., from Fort Oglethorpe, Lieut. S. COBB, Baltimore.

To Fort Bayard, N. M., from San Antonio, Lieut. L. L. JACOBS, Baltimore.

To Rochester, Minn., Mayo Clinic, for instruction, from Camp Meade, Lieut.-Col. G. L. QUALLS.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to their proper stations,* from Camp Meade, Capts. C. W. VEST, J. R. B. BRANCH, Baltimore.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Major G. TIMBERLAKE, Lieut. W. A. H. COUNCIL, Baltimore.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. E. NOVAK, Baltimore.

The following order has been revoked: *To Hoboken, N. J.,* from Camp Devens, Capt. F. E. WHEET, Rumford.

Massachusetts

To Army Medical School, from Camp Crane, Lieuts. E. J. FITZGIBBON, Boston; J. E. DEMPSEY, Newton; from Camp Wheeler, Lieut. C. BEARSE, Boston.

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. M. E. COONEY, Northampton.

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. P. J. FINNEGAN, Salem.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. R. S. PEARCE, Falkner.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. J. E. BURNS, Natick.

To Camp Lee, Va., base hospital, from Camp Wheeler, Lieut. W. R. SISSON, Boston.

To Camp Meade, Md., from Camp Meigs, Lieut. M. W. PECK, Marblehead.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieuts. L. H. POTE, Winter Hill; E. R. LEIB, Worcester.

To Fort Ethan Allen, Vt., from Fort Oglethorpe, Lieut. C. B. KENNEY, Wichendon.

To Fort McHenry, Md., from Army Medical School, Capt. L. I. SKIRBALL, Revere.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. E. S. O'KEEFE, Lynn.

To Hoboken, N. J., from Fort Myer, Lieut. H. W. ELLAM, Gardner.

To Lakewood, N. J., from Fort Oglethorpe, Capt. S. F. CURRAN, Boston.

To Long Beach, N. Y., from Fort Oglethorpe, Capt. C. M. HUTCHINSON, Cambridge; E. J. SWEENEY, Springfield; Lieuts. J. G. HEGARTY, Boston; C. R. VINAL, Turners Falls.

To Newport News, Va., from Camp Lee, Capt. J. W. CLARKE, Attleboro.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Boston, Capt. A. G. RICE, Springfield.

The following orders have been revoked: *To Colonia, N. J.,* from Camp Crane, Lieut. L. S. KEMP, Canton. *To Camp Jackson, S. C.,* base hospital, from Fort Oglethorpe, Capt. H. F. DEARBORN, Lawrence. *To Hoboken, N. J.,* from Camp Devens, Capts. F. E. WITHEE, Newton; J. T. McGILLICUDDY, Worcester.

Michigan

To Biltmore, N. C., from Fort Oglethorpe, Capt. A. J. REYNOLDS, Flint.

To Camp A. A. Humphreys, Va., to examine troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. J. G. GAGE, Battle Creek.

To Camp Forrest, Ga., from Fort Oglethorpe, Capt. C. D. CHAPIN, Columbiaville.

To Camp Jackson, S. C., base hospital, from Camp Wheeler, Capt. H. W. EMERSON, Ann Arbor.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieuts. P. F. MORSE, Highland Park; D. W. PATTERSON, Port Huron.

To Hoboken, N. J., from Camp Crane, Lieut. F. L. NONHART, Detroit; from Fort Oglethorpe, Lieut. F. F. GARDNER, Detroit.

To Lakewood, N. J., from Newport News, Lieut. J. A. ELLIOTT, Ann Arbor.

To Plattsburg Barracks, N. Y., from Camp Meigs, Capt. J. F. BERRY, Kalamazoo.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Custer, Lieut. E. S. THORNTON, Muskegon.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Lieut.-Col. N. B. FOSTER, Ann Arbor.

To West Baden, Ind., from Fort Oglethorpe, Capt. P. B. TAYLOR, Detroit.

The following orders have been revoked: *To Boston, Mass.,* from Camp Crane, Major C. D. BROOKS, Detroit. *To Hoboken, N. J.,* from Camp Devens, Lieut. R. D. HENSEL, Detroit.

Minnesota

To Army Medical School, from Camp Pike, Capt. F. G. BLAKE, Minneapolis.

To Camp Custer, Mich., base hospital, from Camp Grant, Capt. E. BOECKMANN, St. Paul.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Capt. J. E. DOUGLASS, Thief River Falls.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. C. L. HANEY, Duluth.

To Chicago, Ill., from Fort Riley, Lieut. W. R. HUMPHREY, Stillwater.

To Fort Riley, from Fort Oglethorpe, Capt. J. W. DOYLE, Minneapolis.

To Fort Sheridan, Ill., from Camp Lee, Lieut. J. A. SAARI, Evaleth; from Fort Oglethorpe, Lieut. P. S. EPPERSON, Biwabik.

To Fort Snelling, Minn., and on completion *to Denver, Colo.,* from the Surgeon-General's Office, Major C. H. KEENE, Minneapolis.

To Hoboken, N. J., from Fort Oglethorpe, Capt. M. J. KERN, St. Cloud.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. A. R. ANDERSON, Barnum.

The following orders have been revoked: *To Camp Sevier, S. C.,* from Fort Oglethorpe, Lieut. A. H. SCHWARTZ, Duluth. *To Fort Des Moines, Iowa,* from Fort Riley, Capt. W. H. REPLOGLE, Wabasha.

Mississippi

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. J. I. WOODWARD, Picayune.

To Camp Meade, Md., base hospital, from Army Medical School, Capt. D. S. LUCE, Canton.

To Fort Saint Philip, La., from Camp Leach, Capt. C. H. OTKEN, McComb.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. H. W. PRIDDY, Charleston.

To Middletown, Pa., from Fort Oglethorpe, Lieut. L. B. HUDSON, Hattiesburg.

Missouri

To Army Medical School, from Camp Pike, Major E. L. OPIE, St. Louis.

To Biltmore, N. C., from Fort Oglethorpe, Capt. J. D. JAMES, Springfield.

To Camp Meigs, D. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. A. M. GOLDMAN, Kansas City.

To Camp Morrison, Va., from Camp Zachary Taylor, Lieut. J. C. PEDEN, St. Louis.

To Chicago, Ill., from Fort Riley, Lieut. R. E. WILEY, Sikeston.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. E. WATTENBERG, Berger.

To Fort Monroe, Va., from Fort Oglethorpe, Capt. E. P. HAMILTON, Kansas City.

To Fort Screven, Ga., from Camp Leach, Capt. E. S. SMITH, Macon.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. L. SANTE, St. Louis.

To Fort Wayne, Mich., from St. Paul, Lieut. D. B. HAWORTH, Kansas City.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. O. C. HORST, Springfield.

To Lawrenceville, N. J., from Camp Sherman, Lieut. K. C. PEACOCK, St. Louis.

To Plattsburg Barracks, N. Y., from Camp Grant, Lieut. J. F. McFADDAN, St. Louis.

The following orders have been revoked: *To Camp Bowie, Texas,* from Camp Beauregard, Lieut. N. ZOGLIN, Kansas City. *To Camp Greene, N. C.,* base hospital, for instruction, from Camp Jackson, Capt. R. S. TILLES, St. Louis. *To Hoboken, N. J.,* from Fort Oglethorpe, Lieut. W. B. LEVENS, Creighton.

Montana

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. C. A. JOHNSON, Livingston.

Nebraska

To Army Medical School, from Camp Crane, Capt. F. E. BRAUGHT, Coleridge.

To Camp Devens, Mass., from Washington, D. C., Capt. W. T. GARFIELD, Lincoln.

To Camp Dix, N. J., base hospital, from Camp Dodge, Major H. DAVIS, Genoa.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Custer, Capt. C. HILTON, Lincoln; from Fort Omaha, Lieut. J. J. LANCER.

The following order has been revoked: *To Camp Travis, Texas,* base hospital, from Camp Grant, Capt. J. F. KELLY, Dawson.

New Hampshire

To Hoboken, N. J., from Camp Devens, Lieut. E. L. CHAPMAN, Dover.

The following order has been revoked: *To Fort Leavenworth, Kan.,* from Fort Oglethorpe, Lieut. G. A. JOHNSON, Concord.

New Jersey

To Boston, Mass., from Camp Sevier, Capt. S. H. SULOUFF, Jersey City.

To Camp Alfred Vail, N. J., from Camp Crane, Lieuts. H. H. RICH, Newark; E. F. STEWART, Upper Montclair.

To Camp Devens, Mass., base hospital, from New Haven, Lieut. J. M. TAMRAZ, Passaic.

To Camp Dix, N. J., base hospital, from Camp Lee, Capt. A. L. ELLIS, Metuchen.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut W. H. McCORMICK, Jr., Perth Amboy.

To Camp Lee, Va., base hospital, from Camp A. A. Humphreys, Capt. J. M. JONES, Jersey City; from Fort Oglethorpe, Lieut. C. F. MERRILL, Highland Park.

To Camp Meigs, D. C., from Camp A. A. Humphreys, Capt. F. A. ROBERTS, Newark.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. T. J. RIORDAN, Jersey City.

To Hoboken, N. J., from Camp Lee, Lieut. J. L. FARDEN, Irvington.

To Otisville, N. Y., from Fort Oglethorpe, Capt. G. THORBURN, Newark.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Wadsworth, Capt. A. NELSON, Jersey City; from Colonia, Capt. A. S. HARDEN, Newark.

To West Baden, Ind., from Fort Oglethorpe, Lieut. W. S. McDANNOLD, Tenafly.

The following order has been revoked: *To Colonia, N. J.,* for instruction, from Camp Jackson, Lieut. W. SPICKERS, Paterson.

New Mexico

To Army Medical School, from Hoboken, Major E. S. BULLOCK, Silver City.

New York

To Army Medical School, from Camp Wheeler, Major R. L. CECIL, Lieut. G. E. BLUE, New York; from Fort Oglethorpe, Lieuts. H. T.

CARTWRIGHT, R. C. ECKARDT, New York. For instruction, from Fort Oglethorpe, Capt. L. F. CLELAND, Lisbon.

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. L. H. SMITH, New York.

To Camp Dix, N. J., to examine troops from New York, Lieut. W. C. PORTER, Hudson River.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieuts. W. L. MADDEN, Brooklyn; E. H. BURNES, Rochester.

To Camp Gordon, Ga., with the board examining the command for cardiovascular diseases, from Lakewood, Lieut. A. TOWBIN, New York.

To Camp Greene, N. C., from Fort Oglethorpe, Lieuts. J. G. J. GRIMLEY, New York; J. H. CONGER, Utica.

To Camp Hancock, Ga., base hospital, Lieut. H. B. FEUERSTEIN, Brooklyn.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major G. F. CHANDLER, Kingston.

To Camp Lee, Va., base hospital, from Camp A. A. Humphreys, Capt. A. A. EPSTEIN, New York.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieuts. W. G. PHIPPS, Mount Vernon; J. M. GRIFFIN, Warrensburg.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. A. F. CALVELLI, New York.

To Camp Sherman, Ohio, from Camp Wheeler, Capt. L. B. MOUNT, Albany. Base hospital, from Fort Oglethorpe, Lieut. F. TERRASSE, Buffalo.

To Camp Upton, N. Y., from Camp Meade, Lieut. A. LEIBOVITZ, New York; from Lakewood, Lieut. J. BECKENSTEIN, Brooklyn.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. J. G. HART, Rochester.

To Camp Wheeler, Ga., base hospital, from Lakewood, Capt. C. W. FIELD, New York.

To Charleston, S. C., from Fort Oglethorpe, Lieut. H. SHIMBERG, Syracuse; from the Surgeon-General's Office, Lieut.-Col. E. C. REGISTER, Syracuse.

To East Norfolk, Mass., from Fort Oglethorpe, Lieut. H. AGRIS, Brooklyn.

To Fort Benjamin Harrison, Ind., from Camp Sevier, Capt. J. A. McCAFFERTY, New York.

To Fort Logan H. Roots, Ark., from Fort Oglethorpe, Lieut. F. J. LEONARD, Ilion.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. E. C. REIFENSTEIN, Syracuse; Lieut. A. L. MARGOLIES, New York.

To Fort Riley, base hospital, from Camp Dix, Capt. E. C. FISCHBEIN, Sonyea.

To Fort Slocum, N. Y., from Fort Oglethorpe, Lieut. M. F. SULLIVAN, Pyrites.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieuts. J. J. O'LOUGHLIN, Brooklyn; R. C. MOONEY, Gloversville.

To Hoboken, N. J., from Camp Dix, Major E. H. PERSHING, Woodmere; from Fort Oglethorpe, Capt. W. B. LARGE, Rochester.

To Lakewood, N. J., from Camp A. A. Humphreys, Lieut. A. EBERLE, Brooklyn; from Fort Oglethorpe, Capt. E. M. GRIFFITH, Chadwicks; Lieut. T. V. STACK, New York.

To Lawrenceville, N. J., from Fort Oglethorpe, Lieut. F. C. McCLELLAN, New York.

To Long Beach, N. Y., from Camp Abraham Eustis, Lieut. B. R. BASE, Brooklyn; from Camp Crane, Major C. D. NAPIER, Brooklyn; from Camp Devens, Major W. M. FORD, New York; from Fort Oglethorpe, Lieut. H. H. LE SEUR, Batavia; from Metuchen, Major W. A. CONLON, Central Islip.

To Middletown, Pa., from Fort Oglethorpe, Capt. J. H. KEVAND, Syracuse.

To New Haven, Conn., from Fort Oglethorpe, Capt. E. N. PACKARD, Saranac Lake.

To Otisville, N. Y., from Fort Oglethorpe, Lieut. J. BOGAN, New York.

To Plattsburg Barracks, N. Y., from New York, Capt. G. C. FISK, Buffalo.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, from Camp Crane, Capt. H. M. RATLIFF, New York. On completion *to his proper station*, from Camp Crane, Capt. G. E. STANBRO, Springville; from Lakewood, Capt. J. B. RINGLAND, Oswego.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. J. B. BOEHM, New York.

To Washington, D. C., Surgeon-General's Office, from Camp McClellan, Major A. V. MOSCHCOWITZ, New York; from New Haven, Lieut. H. R. MULLER, New York.

To Williamsbridge, N. Y., from Fort Oglethorpe, Lieut. J. F. LARKIN, Kingston.

The following orders have been revoked: *To Biltmore, N. C.*, from Camp Crane, Capt. J. A. COX, Albany. *To Dansville, N. Y.*, from Camp Custer, Major A. S. MOORE, Middletown. *To Fort McPherson, Ga.*, from Fort Oglethorpe, Lieuts. S. W. ROCK, S. STEIN, New York. *To Hoboken, N. J.*, from Camp Devens, Capt. E. D. RUDDEROW, New York. *To Mineola, N. Y.*, Hazelhurst Field, from Princeton, Lieut. P. B. JENKINS, New York.

North Carolina

To Camp Devens, Mass., to examine the troops for cardiovascular disease, from Fort Oglethorpe, Lieut. R. C. RAY, Beaver Creek.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. T. C. KERNS West Durham.

To Fort Bayard, N. M., from Fort Oglethorpe, Major H. T. FRAZER, Asheville.

To Fort Leavenworth, Kan., from Cape May, Capt. G. A. HATCHER, Rosehill.

North Dakota

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. H. L. SAYLOR, Cogswell.

To Fort Benjamin Harrison, Ind., from Camp Joseph E. Johnston, Lieut. L. F. FISHER, Grand Forks.

Ohio

To Boston, Mass., from Fort Oglethorpe, Capt. C. D. SLAGLE, Centerville; Lieut. W. R. KELLER, Dover.

To Camp Gordon, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. W. W. BECK, Toledo. Base hospital, from Fort Oglethorpe, Capt. J. MacLACHLAN, Cleveland.

To Camp Gum Springs, Va., from Camp Leach, Lieut. F. BEEKEL, Cleveland.

To Camp Lee, Va., base hospital, from Camp Sherman, Major R. H. BIRGE, Cleveland.

To Camp Meade, Md., from Camp Polk, Lieut. E. D. ROSEWATER, Cleveland. Base hospital, from Fort Oglethorpe, Capt. E. H. SEASON, Cleveland.

To Camp Pike, Ark., on the board examining the command for cardiovascular diseases, from Fort Oglethorpe, Lieut. D. SELMAN, Cleveland.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. J. S. TETER, Toledo.

To Camp Upton, N. Y., to examine the troops for cardiovascular diseases, from Camp Wheeler, Lieut. H. B. WEISS, Cincinnati.

To Camp Zachary Taylor, Ky., from New Haven Lieut. H. J. POWELL Bowling Green.

To Dansville, N. Y., from Fort Oglethorpe, Lieut. J. R. CRAWLEY, Athens.

To Detroit, Mich., from Fort Oglethorpe, Lieut. E. SHELDON, Bloomdale.

To Fort Wayne, Mich., from St. Paul, Capt. C. O. BEARDSLEY, Ottawa.

To Hoboken, N. J., from Camp Crane, Capt. A. H. STALL, Barberton; from Camp Upton, Lieut. J. B. SAMPSELL, Van Wert.

To Lakewood, N. J., from Fort Oglethorpe, Capt. A. B. LIPPERT, Cincinnati.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. B. J. SAWICKI, Cleveland.

The following order has been revoked: *To Camp Sherman, Ohio*, from Fort Oglethorpe, Lieut. R. R. BOND, Dayton.

Oklahoma

To Fort Des Moines, Iowa, from Camp Travis, Lieut. R. M. HARGROVE, Norman.

To Fort Sill, Okla., base hospital, from Fort Riley, Lieut. G. Y. McKINNEY, Henryetta.

Oregon

To Fort Sill, Okla., base hospital, from Fort Riley, Lieut. E. D. LAMB, Union.

To Newport News, Va., from Camp Lee, Lieut. E. J. CROWTHERS, Austin.

The following order has been revoked: *To Lakewood, N. J.*, from Camp Crane, Capt. J. F. WOOD, Portland.

Pennsylvania

To Army Medical School, from Camp Crane, Lieuts. D. G. MOYER, Philadelphia; D. B. COOLEY, Pottstown. For instruction, from Camp Las Casas, Capt. H. MAYER, Jr., Johnstown.

To Azalea, N. C., from New Haven, Lieut. J. N. HAYES, Crafton.

To Boston, Mass., from New Haven, Lieut. H. F. BAKER, Philadelphia.

To Camp Alfred Vail, N. J., from Camp Crane, Lieut. W. J. PROBST, Pittsburgh.

To Camp Beauregard, La., to examine the command for nervous and mental diseases, from Camp Wheeler, Lieut. M. H. WEINBERG, Pittsburgh.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. C. W. WANG, Philadelphia; from Newport News, Lieut. G. W. MELLON, Woodlawn. As orthopedic surgeon, from Camp Wheeler, Lieut. M. A. COHEN, Pittsburgh.

To Camp Grant, Ill., from Fort Oglethorpe, Capt. M. C. O'BRIEN, Philadelphia.

To Carlisle, Pa., from Fort Oglethorpe, Lieut. J. W. FISHER, Pittsburgh.

To Charleston, S. C., from the Surgeon-General's Office, Major W. S. CORNELL, Philadelphia.

To Dansville, N. C., from Camp Greene, Lieut. H. A. WICK, New Bethlehem.

To Eastview, N. Y., from Camp Meade, Capt. R. R. DECKER, Orbisonia.

To Fort Logan, Colo., as orthopedic surgeon, from Camp Cody, Lieut. W. W. SCHMID, Pittsburgh.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. C. B. WORDEN, Philadelphia.

To Fort Monroe, Va., from Fort Oglethorpe, Lieut. J. C. KELSO, Cannonsburg.

To Fort Riley, from Fort Oglethorpe, Capt. J. D. BLEVINS, Pittsburgh; Lieut. H. R. FISHBACK, Philadelphia.

To Fort Sill, Okla., base hospital, as commanding officer, from Fort Sill, Capt. J. A. RODDY Jr., Philadelphia.

To Hampton, Va., Langley Field, from Fort Oglethorpe, Lieut. A. SILVERMAN, Philadelphia.

To Hoboken, N. J., from Camp Upton, Lieut. M. S. KLECKNER, Allentown.

To Hot Springs, Ark., from Fort Oglethorpe, Capt. G. D. MERVINE, Lock Haven.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. D. J. MORTON, Philadelphia.

To Long Beach, N. Y., from Fort Oglethorpe, Lieut. W. A. LUBKEN, Johnstown.

To Middletown, Pa., from Washington, Lieut. C. S. ORRIS, Tarontun.

To Mineola, N. Y., Hazelhurst Field, from Hoboken, Lieut. F. P. LYTLE, Birdsboro.

To Newport News, Va., from Camp Lee, Lieut. C. E. LERCH, Wyomissing.

To Pittsburgh, Pa., from Camp Crane, Capt. W. F. ROSS, Aspinwall.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Wadsworth, Capt. C. C. MARSHALL, Sharon; from Lakewood, Capt. W. P. HUGHES, Pittsburgh.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. W. H. FURNESS, Wallingford; from the Surgeon-General's Office, Lieut.-Col. E. MARTIN, Philadelphia.

To Washington, D. C., St. Elizabeth's Hospital, from Fort Oglethorpe, Lieut. A. P. HYDE, Sharon.

To West Baden, Ind., from Fort Oglethorpe, Lieut. D. T. DITCHBURN, Arnot.

To Williamsbridge, N. Y., from Camp Upton, Major J. R. V. WOLFE, Norristown.

The following order has been revoked: *To Cape May, N. J.*, from Fort Oglethorpe, Lieut. J. P. ROTH, Ashland.

Philippine Islands

To report to the Surgeon-General for assignment to duty from Philippine Department, Major W. C. VON KESSLER.

Rhode Island

To Camp Devens, Mass., base hospital, from Camp Jackson, Major F. T. FULTON, Providence.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Carlisle, Pa., Lieut. E. S. CAMERON, Providence.

South Carolina

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Capt. G. T. TYLER, JR., Greenville.

To Walter Reed General Hospital, D. C., from Camp Crane, Capt. R. C. BROWN, Lancaster.

To West Baden, Ind., from Fort Oglethorpe, Lieut. J. E. PRESSLY, Abbeville.

South Dakota

To Newport News, Va., from Camp Lee, Lieut. C. R. SENESCALL, Veblen.

The following order has been revoked: *To Lakewood, N. J.*, for instruction, from Camp Crane, Lieut. T. J. DEVEREAUX, Aberdeen.

Tennessee

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. L. A. MITCHELL, Nashville.

To Camp McClellan, Ala., on the board examining the command for cardiovascular diseases, from Fort Oglethorpe, Lieut. J. L. BIBB, Chattanooga.

To Camp Shelby, Miss., from Camp Wheeler, Lieut. W. B. LUNSFORD, Murfreesboro.

To Fort Sam Houston, Texas, base hospital, from San Antonio, Lieut. R. F. PATTERSON, JR., Knoxville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Lee, Capt. D. R. PICKENS, Nashville.

Texas

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. H. M. BUSH, San Antonio.

To Camp Holabird, Md., as assistant to camp surgeon, from Fort Oglethorpe, Capt. M. M. CARRICK, Dallas.

To Camp Logan, Texas, to examine the command for nervous and mental diseases, from Camp Pike, Lieut. F. O. CALAWAY, Austin.

To Camp MacArthur, Texas, from Fort Oglethorpe, Lieut. M. B. BOT, Fort Worth.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. W. C. WRIGHT, Farmersville.

To Fort Sheridan, Ill., from Camp Pike, Lieut. F. W. CARRUTHERS, Dallas.

To Hoboken, N. J., from Camp Dix, Lieut. H. E. HOKE, Waco.

To Jackson Barracks, La., from Camp Shelby, Lieut. E. W. RHEINHEIMER, El Paso.

To Key West Barracks, Fla., from Camp Shelby, Lieut. J. C. FALVEY, Humble.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. W. R. MOORE, Spur; from New Haven, Lieut. J. W. SHERRILL, Temple.

To Newport News, Va., from Camp Lee, Lieut. F. B. GOOCH, Temple.

To Scituate, Mass., as camp surgeon, from Fort Oglethorpe, Capt. H. F. BLAILOCK, McGregor.

To Whipple Barracks, Ariz., from Fort Oglethorpe, Lieut. N. SNYDER, Brownwood.

The following order has been revoked: *To Walter Reed General Hospital, D. C.*, from Camp Meade, Lieut. J. CAMP, Pecos.

Utah

To Hoboken, N. J., from Camp Logan, Capt. E. R. DUMKE, Ogden.

Vermont

To Camp A. A. Humphreys, Va., from Edgewood, Md., Capt. S. L. GOODRICH, Waterbury.

To Hoboken, N. J., from Camp Upton, Capt. W. D. BOWEN, Saxtons River.

Virginia

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. W. H. CRAIG, Richmond.

To Chicago, Ill., from Fort Riley, Lieut. W. PIERCE, Ivanhoe.

To Hoboken, N. J., from Camp Meade, Lieut. J. W. DEVINE, Lynchburg.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. J. W. ROBERTSON, Onancock.

To report to the commanding general, Southeastern Department, from Charleston, Lieut. H. S. HENKEL, Brownsburg.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Abraham Eustis, Major L. J. REGAN.

The following order has been revoked: *To Camp Wadsworth, S. C.*, base hospital, from Camp Crane Lieut. E. R. FERGUSON, Roanoke.

Washington

To Newport News, Va., from Camp Lee, Capt. A. SHAW, Anacortes.

Wisconsin

To Camp Jackson, S. C., from Camp Wheeler, Major, M. W. HALL, Mondovi.

To Chicago, Ill., from Camp Wheeler, Lieut. B. O. BENDIXEN, Kewaskum.

To Hoboken, N. J., from Camp Crane, Capt. W. P. FORKIN, Chilton.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. B. F. KOCH, Wauwatosa.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Custer, Lieut. H. F. DERGE, Eau Claire.

To Washington, D. C., St. Elizabeth's Hospital, from Camp Crane, Lieut. W. P. MILLER, Milwaukee.

The following order has been revoked: *To Fort Des Moines, Iowa*, from Fort Riley, Capt. W. A. LADWIG, Wausau.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

KENTUCKY

New Officers.—At the annual meeting of the Jefferson County Medical Society, December 16, the following officers were elected: president, Dr. Claude G. Hoffman; vice presidents, Drs. Alphons R. Bizot and W. Barnett Owen; secretary, Dr. David Y. Keith, and treasurer, Dr. Henry B. Scott, all of Louisville.

MARYLAND

Johns Hopkins Unit Given Sailing Orders.—According to a cablegram dated from Paris, the Johns Hopkins Hospital Unit has received its sailing orders. This unit went abroad a year and a half ago. It was one of the first hospital units to go to France after this country entered the war. It is expected that the unit will be home about the middle of January.

Influenza May Cause Hospital at Frederick to be Closed.—Thirteen nurses at the City Hospital, including the superintendent, are ill with influenza and so crippled is the nursing force that it may be necessary to close the hospital unless help can be secured from other cities. All possible efforts are being made to secure help from other places. To relieve the situation as much as possible, twenty patients considered well enough to leave the hospital were sent to their homes, leaving twenty-two surgical and medical cases that must be given attention. No influenza patients have been received at the hospital, but in some manner the disease developed among the nurses. These cases are completely isolated. While conditions have improved, the epidemic has not abated in this city and in Frederick County.

State Association Assists Medical Officers.—Because many physicians on entering military service failed to send a list of their patients to the secretary of the state association, it is impossible for the state society to notify the patients of these physicians of their return to civil practice. To meet this situation the Medical Chirurgical Faculty of Maryland is supplying, in response to his application, a sufficient number of cards to each of its members as he again takes up civil practice to permit him to notify his patients and consultants in the name of the state organization that he has resumed practice. The card reads: "The Medical and Chirurgical Faculty of the State of Maryland announces that Dr..... of ..... has resumed the practice of medicine, having been honorably discharged from the Military Service of the United States."

MASSACHUSETTS

Somerville Physicians Change Hours.—The Somerville Medical Society has issued a notice systematizing the practice of medicine so the physicians may be able to see more patients. They have dropped the morning office hours and have adopted uniform hours from 2 to 7 p. m., excepting Sundays and holidays. Office hours are reserved for office patients, the other hours being occupied in house visits.

MICHIGAN

Smallpox.—Five new cases of smallpox were reported, December 10, in the epidemic at Adrian, and general vaccination was in progress. Influenza and other infectious diseases were less numerous, and it was expected that the schools would be reopened shortly.

MISSISSIPPI

Hospital Chartered.—A charter has been provided by the governor for the Ivy Hospital, West Point. It will have a capitalization of $7,000 and will be incorporated by E. P. and M. D. Ivy.

Personal.—Dr. Robert S. Curry, director of the bureau of venereal diseases of the state board of health, Jackson, has resigned on account of ill health.——Dr. M. L. Batson, Leakesville, has been appointed superintendent of the State Institution for the Blind, Jackson.——Dr. Roland Houston Cranford, Moselle, has been appointed superintendent of the Southern Mississippi Charity Hospital, Laurel.

Health Officers Hold Meeting.—At the annual meeting of the Mississippi Health Association held in Jackson, the first week in December, the following officers were elected: president, Dr. H. F. Harrison, Florence; vice presidents, Drs. Daniel J. Williams, Gulfport, Henry Boswell, superintendent of the State Tuberculosis Sanatorium, Magee, and W. D. Beacham, Summit, and secretary, Dr. Waller S. Leathers, University, executive secretary of the state board of health. Among the principal subjects for discussion were, the smallpox problem, the control of malaria, and rural sanitation.

MISSOURI

Hospital for Negroes.—The municipal authorities of St. Louis have purchased the buildings formerly occupied by the National University of Arts and Sciences and have altered and equipped them to serve as a city hospital for negroes. The staff of the hospital will be composed of negro physicians. Dr. Roscoe C. Haskell has been appointed superintendent of the institution.

Released from German Prisons.—The following Missouri physicians, who were held prisoners by Germany, have been released and probably now are in France or on their way home: Capt. Arthur H. Sewing, St. Louis; Capt. John F. Hardesty, Winfield, formerly of St. Louis; Lieut. Henry L. Rothman, St. Louis; Lieut. Louis M. Edens, Cabool, and Lieut. Harold A. Goodrich, Webster Groves.

Personal.—Dr. Abra C. Pettijohn, Brookfield, formerly superintendent of State Hospital No. 2 and later superintendent of the Eastern Oklahoma Hospital for the insane at Vinita, is now resident physician at the Dr. Charles R. Woodson Sanitarium, St. Joseph.——Dr. Adrien S. Bleyer, St. Louis, has arrived in France and has been assigned to the Children's Bureau of the American Red Cross.

Open-Air School for Subnormal.—An open-air school, combining the features of a boarding school and day school for girls of subnormal physique and deficient mental development, has been established by the St. Louis Tuberculosis Society, and the public school authorities at St. Louis. It is said to be the first institution of its kind, and the experiment will be tested for six months. The school opens with fifteen children in attendance.

MONTANA

Anaconda Isolation Hospital.—At a meeting of the city board of health of Anaconda, December 5, it was ordered that the capacity of the City Isolation Hospital be doubled. This will give accommodation for twenty-four patients.

Personal.—Dr. Max W. Barbour, Helena, has been reappointed physician of Lewis and Clarke Counties.——Dr. A. D. McDonald, superintendent of the State Tuberculosis Hospital, Galen, and for many years a representative in the state legislature, is reported to be seriously ill and has gone to Portland, Ore., for an operation.——Dr. Archie E. Williams, Havre, has been reelected physician of Hill County.——Dr. Daniel J. Donohue, Butte, president of the state board of health and major, M. C., Montana, N. G., was seriously injured, December 9, in a collision between his automobile and a street car.

NEW YORK

Personal.—Frank Richardson of Cambridge has been appointed commissioner of narcotic drug control by Governor Whitman.

Narcotic Drug Control Department Organizes.—November 1, the work of the Bureau of Habit Forming Drugs was transferred to the Narcotic Drug Control Department which was created by an act of the legislature of 1918. The new department will operate under the provisions of the habit-forming drug law of 1917 until Feb. 1, 1919, when that portion of the 1918 law relating to the sale, use, etc., of narcotic drugs becomes effective.

Penalty for Violation of Orders of Health Officers.—At Niagara Falls the city council passed an ordinance, effective December 10, making any violation of an order of the city health officer, Dr. Walter A. Scott, punishable by a sentence of six months in jail or a fine of $50 or both. Under the public health law the health authorities are obliged to bring an action in a civil court for a $100 penalty for violation of quarantine. The health officer showed that there had been 293 deaths from influenza since the beginning of the epidemic, and that there had been 6.049 cases of the disease. Of the deaths, 112 occurred since November 4, when the first general quarantine was lifted. The ban was restored after it had been off for two weeks.

New York City

Pasteur Institute Closed.—The Pasteur Institute of New York has closed its doors permanently, after nearly thirty years of service. Dr. George Gibier Rambaud, the last physician at the head of the institute, has received a commission in the National Army and has been ordered to service in France. In his valedictory for the institute he gave as the reason for discontinuing the work that the institute had fulfilled its purpose by introducing the Pasteur treatment into this country so that it was now given by all well appointed hospitals. Since 1910, the institute has treated more than 10,000 patients, four fifths of them without charge.

Health Board Stations to Sell Emulsified Milk.—Owing to the fact that the high price of milk has inflicted injury to the health of the city, and especially of the younger generation, the department of health announces that there will be placed on sale at the board of health stations an emulsified milk manufactured by the department of markets. This milk has been highly recommended by pediatricians, who say that it is equal to "Grade A" milk. The emulsified milk is made of ordinary milk with the butter fats extracted and the water dried off. This powder is the basis of the emulsified milk. It is to be retailed so as to supply emulsified milk at 11 cents a quart.

Slight Increase in Influenza.—For the week ending December 21 there were 1,707 deaths from all causes in this city, a rate of 15.17 per thousand population against 1,612, a rate of 14.66, for the corresponding week of 1917. This increase is due to influenza and pneumonia. The mortality from other disease is below normal; this is particularly true of such communicable diseases as measles, scarlet fever, diphtheria and whooping cough. The death rate of infants for the above named week was 76 per thousand births as against 89 for the corresponding week of 1917. Deaths due to organic disease were also below normal, while for tuberculosis they were approximately the same as for 1917.

Many Wounded Soldiers and Sailors Here.—There were in the hospitals of New York City and the vicinity, December 24, 42,077 sick or wounded soldiers, sailors, marines and nurses. The hospitals include the Debarkation, located in the old Greenhut Store building, Ellis Island, Hoffman Island, Grand Central Palace, Polyclinic, Fox Hills and the Gun Hill Road Hospital. The Red Cross provided a Christmas tree for every ward in these hospitals. Canes were distributed to every enlisted man, inscribed "Red Cross, 1919." Some 3,000 sailors and marines received fountain pens and nothing was left undone to make Christmas merry for every man in these hospitals.

Personal.—Dr. Anthony Bassler has been appointed professor of gastroenterology at Fordham University Medical School.——Dr. William V. P. Garretson has recently been appointed consulting neurologist to the Hospital of Functional Reeducation of Disabled Soldiers and Sailors, which is affiliated with Cornell University Medical College.——Dr. Ralph Herz, who until recently has been resident physician and pathologist of the Metropolitan Hospital, Blackwell's Island, has gone to Rochester, Minn., to become a member of the staff of the Mayo Clinic.——Dr. Nathaniel Blitzer, chairman of Local Draft Board 98, who was indicted on the charge of irregularities in connection with the enforcement of the selective draft law, has been exonerated, there being no evidence to sustain the charge.

Court Finds Difficulty in Defining "Diagnosis."—In the case of August Ziegler, a druggist, brought before the Long Island City Police Court, December 28, for practicing medicine without a license, the magistrate reserved decision for several days in order to consider the definition of "diagnosis." The testimony brought out showed that a woman had gone to the drug store complaining of a pain under her shoulder blade. Ziegler told her to go home, apply a mustard plaster, and go to bed, and to paint the sore spot with iodin. Being no better she returned two days later when he told her she had pleurisy and gave her a mixture to take. The accused admits this much but denies that he made a diagnosis of the ailment. Dr. Briggs, president of the Queens County Medical Society, called in to define "diagnosis," said that a physical examination was necessary while another physician call to testify stated that a physical examination was not necessary in order to constitute a diagnosis.

OHIO

Social Disease Bureau Established.—To cooperate with the U. S. P. H. S., the state department of health and the Cincinnati Health Department has established a bureau of social diseases, with offices in the Blymyer Building under the charge of Dr. Clarence J. Broeman. Clinics will be conducted on Tuesdays, Thursdays and Saturdays from 7 to 8 p. m.

Call District Physicians.—In Cincinnati, December 12, Dr. William H. Peters, Cincinnati health officer, had printed in the newspapers a list of district physicians in the city, advising citizens in need of medical services to employ them in instances in which they could not get the services of their regular physicians on account of the great number of influenza cases.

Personal.—Dr. Charles G. Augustus, U. S. P. H. S., recently appointed assistant director of public health of Springfield, has assumed the duty of his new position.——Dr. William H. White, Cleveland, formerly chief medical examiner of the state industrial commission, is said to have failed to secure reinstatement in that position, when the supreme court, December 10, granted the application of the commission preventing the Franklin County common pleas court from hearing Dr. White's appeal.

Qualify for State Hospital Positions.—The state civil service commission, Columbus, announced, December 12, the record of the examination held, December 10, for superintendent of the Cleveland State Hospital. In this competition Dr. Guy H. Williams, formerly assistant at Columbus State Hospital led, Dr. Harry H. McClellan, Dayton, formerly assistant superintendent at the Dayton State Hospital, was second, and Dr. Paul J. Alspaugh, assistant physician at the Massillon State Hospital, was third.

PENNSYLVANIA

Golden Jubilee.—The Medical Society of Franklin County will celebrate its golden anniversary on Jan. 21, 1919.

Physicians Found Guilty.—Dr. Ellsworth J. Trader, Pittsburgh, is said to have been convicted by a jury in the United States District Court, December 12, on an indictment containing twenty-one counts charging violation of the Harrison Narcotic Law. The Assistant United States Attorney announces that the defendant would soon be brought on other charges involving violation of the same law.

Supply of Nurses Deficient.—The state health department was hard pressed in the original outbreak of influenza and again in the present flareback affecting Altoona, Tyrone, Erie, Wilkes-Barre and other cities, for physicians and nurses. In many communities families insisted on the services of trained nurses. This drained the supply until the advice of the state health department was followed to pool interests by districting towns. This allowed a trained nurse and a physician for a given number of patients.

Personal.—Dr. William McKenzie, Conshohocken, presented a $100 liberty bond, with coupons attached, to the Montgomery County Medical Society, to be used as a nucleus of a permanent fund for a new home for the society.——Lieut. Ernest J. Hoover, M. C., who has been attached to the 369th infantry and stationed back of the front lines since May 12, is reported to be the first Altoona physician wounded, his leg having been broken when his air post was blown up by a shell.——Dr. Julius T. Vissel, Roaring Spring, suffered a cerebral hemorrhage, December 18, and is reported to be in very serious condition.——Dr. F. E. Downes, city superintendent of schools of Harrisburg, who had been critically ill, is reported to be convalescent.——Dr. Horatio C. Wood, Jr., professor of therapeutics at the University of Pennsylvania, is seriously ill in the University Hospital. It is feared he has contracted typhoid fever. During the influenza epidemic Dr. Wood devoted all his time to attending students of the Student Army Training Corps.——Dr. Frank C. Abbott of Jefferson Hospital unit has been decorated by the president of the French Republic with the "Medaille de la Reconnaissance Francaise." Dr. Abbott served in France more than three years before America entered the war.——Dr. John A. Presper has received word from his son, Capt. Elmer J. Presper, M. R. C., that he had been released from a German prison camp.——Major E. Hollingsworth Siter, M. R. C., now in France, will command an American Base Hospital to be established in Germany. For some time Major Siter has had charge of Base Hospital No. 68, A. E. F., at Mars-Sur-Allier.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about $250, will be made on July 14, 1919, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1919. Each essay must be sent without signature, but must be plainly marked with the motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned on application within three months after the award. No Alvarenga Prize for 1918 was awarded.

Philadelphia

Influenza Still Prevails.—Influenza still prevails, but not to an alarming extent. There were thirty-seven new cases reported to the bureau of health, December 20.

Aid for Epidemic Patients.—For the purpose of research as well as aid to convalescent influenza patients, the Visiting Nurse Society has launched a complete follow-up investigation of the 4,050 cases of influenza under its care during the epidemic. The purpose is twofold: to help those who need money and to keep in touch with those who have apparently recovered without regaining normal vigor. The Emergency Aid and the National League for Women's Service are cooperating with the Visiting Nurses' Society in this follow-up work.

Personal.—Dr. Mervin Ross Taylor has been appointed medical officer of the Bell Telephone Company of Pennsylvania and associate companies.——Lieut. Orlando H. Petty, who served as surgeon with the Fifth Marines at Chateau Thierry, Belleau Wood and Soissons and who was gassed at Chateau Thierry, landed in New York, December 18.——Lieut. George G. Ross, Lieut.-Com. Robert G. Le Conte, Lieut.-Com. James E. Talley, Lieut. B. B. Vincent Lyon and Lieut. Jacob L. Herman have returned home from the war zone in France.——Dr. George Slonimsky has been appointed assistant medical inspector of the bureau of health.——Capt. Edwin S. Cooke, M. C., after fourteen months' service at a base hospital at Camp Meade, has returned to civil life and will resume his practice.——Dr. Edward Martin has accepted the position of health commissioner of Pennsylvania.

TENNESSEE

State Laboratory to Be Made Permanent.—At the meeting of the state board of health in Nashville, December 11, it was determined to continue as a permanent feature of health work in the state the laboratory recently established. A department of sanitary engineering was also one of the matters discussed. Vital statistics and the control of venereal diseases were other matters taken up. Influenza occupied the attention of the board during the meeting. Dr. Robert C. Derivaux of the United States Public Health Service giving a talk on the work of combating the epidemic in Nashville and Davidson County.

VIRGINIA

Society Meeting.—At the meeting of the Lynchburg and Campbell County Medical Society held at Lynchburg, December 2, Dr. John W. Dillard, was elected president, and Robert P. Kelly, both of Lynchburg, vice president, and Dr. Robert N. Younger, Snow Creek, secretary-treasurer.

Personal.—Dr. Robert C. Bryan has been appointed a member of the surgical staff of the Richmond City Home, to succeed Dr. H. Norton Mason, who has resigned.——Dr. Paul C. Spangler, Sutherland, charged with selling narcotics to soldiers, was exonorated at a hearing before a United States Commissioner, November 20.

CANADA

Hospital News.—The Calgary Hospital has had financial difficulties during the past year, and it is seeking an additional grant of $17,000 from the city to carry on the work for the balance of the year.

Personal.—Lieut.-Col. Charles A. Hodgetts, C. M. G., Ottawa, formerly medical adviser to the Canadian Conser-

vation Commission, who has been overseas more than four years, has returned to Ottawa. Colonel Hodgetts was Canadian Red Cross Commissioner for three and a half years, and then entered the services of the British Ministry of Health, being stationed at various places in Ireland and England.——Capt. F. A. Atkinson, C. A. M. C., Alberta, has been awarded the Military Cross.——Dr. Ridley Mackenzie, McGill University, Montreal, is now on military duty at Bournemouth, England.——Dr. Arnold A. Halliday has returned from overseas and resumed practice in Toronto.

Personal.—The late Dr. A. Orr Hastings, brother of Dr. Charles J. C. O. Hastings, M. O. H., Toronto, left an estate of more than $100,000. More than $30,000 goes to hospitals and charitable purposes, the Hospital for Sick Children getting $4,000, and the Infants' Home, $2,000. The balance of the estate will go to relatives of the deceased.——Dr. Jacob Segal has been appointed medical superintendent of the Earl Grey Sanatorium, Regina, Sask., to replace Dr. Lester G. Houle, who has been transferred to the Tranquille Sanatorium at Kamloops, B. C.——Lieut.-Col. Percival K. Menzies, for the past year in charge of the surgical work at Orpington Hospital, England, has returned to Toronto.——Lieut.-Col. C. E. Cooper Cole has returned from overseas to Toronto.

Ontario Medical Act.—The Ontario government has given the medical profession another hearing before considering the new Ontario Medical Act. The examination question was under consideration. The University of Toronto favored one examination, and not any to be held by the Medical Council; but Dr. James C. Connell of Queen's University thought it not unreasonable that students should be required to pass the two examinations. Dr. Robert Ferguson, London, president of the Ontario Medical Council, speaking for the Western University of London, stated he was not aware that the Western University favored the abolition of the second examination. He also thought that the universities should each be considered a unit and have one representative on the Medical Council. At present the universities have six. He did not think it right that the University of Toronto should have three. Dr. Edmund E. King, Toronto, was opposed to Mr. Justice Hodgins' report that the representatives should be chosen by general election of the profession in the province. He said that the Medical Council and the profession generally favored the system of territorial election as at present—eight outside Toronto, and two within that city. The homeopaths had too many already. Dr. Alexander W. Crichton, Castleton, Ont., thought that the council should not have power to suspend the registration of a practitioner.

GENERAL

The Waste of Influenza.—As reported from Washington, December 10, out of 338,257 cases of influenza among the troops there were 17,000 deaths during the epidemic. In an address before the Association of Life Insurance Presidents in New York early in December, Henry Moir, president of the Actuarial Society of America, suggested that the total of about 400,000 deaths from the disease in this country meant an economic waste of ten million years.

Southern Surgeons Elect.—At the thirty-first annual meeting of the Southern Surgical Association held in Baltimore, December 18 to 20, the following officers were elected: president, Dr. J. E. Thompson, Galveston, Texas; vice presidents, Dr. Charles R. Robins, Richmond, Va., and George A. Hendon, Louisville, Ky.; secretary, Dr. Hubert A. Royster, Raleigh, N. C. (reelected), and treasurer, Dr. Guy L. Hunner, Baltimore (reelected). New Orleans was selected as the next place of meeting.

Comes to Aid Blind Soldiers.—Sir C. Arthur Pearson, head of the British National Institute, which is devoted to the care of men who have lost their sight in the war, and himself blind, sailed for the United States and Canada, December 20. The object of his visit is to confer with those responsible for the care of American soldiers blinded in the war and with Canadian authorities regarding the future welfare of Canadian soldiers trained at St. Dunstan's Hotel for Blinded Soldiers and Sailors, London.

Influenza.—The prevalence of influenza throughout the country is still great, with the general death rate increased over the normal by this disease and its complicating pneumonia. In no place, perhaps, is the disease occurring as frequently as at the height of the first wave in October and November. In most places there is a gradual subsidence as compared with the situation the first week or two following the peace celebrations, when there was an accession of cases. Indiana, for instance, reports a general and notable improvement, as do Wisconsin and Michigan. The army camps report a decided improvement. December 21, the Ohio State Medical Association through its executive secretary asked the Secretary of War to release at least two hundred Ohio physicians from the military service to aid in combating influenza in the rural districts of the state. Montana reports a regression in most communities, but in some there is still necessity for active measures. At Augusta, Me., December 17, restrictive measures, which had been suspended, were again to be enforced. In Alabama the disease was still the subject of concern by the state and local health authorities, especially at Montgomery. At Richmond, Va., it was reported, December 18, that of the 24,000 city schoolchildren one third were absent from the schools on account of the disease and the quarantine requirements in families having the disease. Illinois shows some improvements, but state officials warn that precautionary measures must not be relaxed. In Chicago and the north shore villages the situation was improving December 24. On that date there were 381 new cases of influenza and 126 new cases of pneumonia in Chicago, with eighty deaths from influenza and forty-three from pneumonia. There were twelve deaths in Evanston and the ban was not to be lifted on Christmas.

FOREIGN

Agitation in Spain for a Minister of Public Health.—The profession in Spain is making strenuous efforts for the centralization of the public health service as a government cabinet department. The *Medicina Ibera*, among other Spanish journals, is conducting an active propaganda, and is publishing a series of letters from leading physicians expressing their views on the subject. The letter from Ramon y Cajal is reproduced by photograph. He strongly endorses the idea and especially at the present moment, but he doubts whether the powers that be will consent to the creation of a new cabinet department, saying: "The higher spheres have little heed for hygiene, and to this appeal they will reply with arguments, not without some basis, as to the economical obstacles and the necessity for subordinating the hygienic measures, which often raise questions of a public order, to the ministerio de la Gobernacion, the only one, aside from the minister of war, which can impose effectual coercion." Parenthetically, Professor Cajal refers to his poor health, saying: "The cerebral arteriosclerosis from which I am suffering has become so much worse recently that I am obliged to refrain from writing, speaking and reading. Five minutes of any conversation induce intolerable congestion and headache, so I am compelled to a silence and solitude which are an actual martyrdom for me. I regret that I am unable to take up this matter of a ministry of public health as I should like to." He is now in his sixty-sixth year.

MEXICO LETTER

MEXICO CITY, Dec. 12, 1918.

Epidemic of Influenza

The southeastern states of Mexico, Tabasco, Campeche and Chiapas, have now been invaded by the epidemic of influenza, and it is seizing numerous victims. When one reflects that the epidemic invaded Mexico from the north, at Laredo, and has followed a course from north to south, there is reason to fear that the disease will spread to Guatemala and invade Central America.

The Food Supply

Thanks to the good will of the government of the United States, the restrictions on the importation of foodstuffs into this country have been largely rescinded, and large quantities of wheat and flour have begun to arrive, which will reduce the price of bread to the benefit of all.

The University of Michoacán

On the first day of the new year there is to be inaugurated in the city of Morelia, state of Michoacán, the University of San Nicolas de Hidalgo. It will occupy the same buildings as the old Colegio de San Nicolas, founded during the Spanish rule, and of which Don Miguel Hidalgo, the father of his country, was the first alumnus and rector.

The new institution owes its inception to the governor, Ing. P. O. Rubio. It will comprise departments for law, medicine, pharmacy, engineering and belles-lettres. Dr. A. Oviedo is to be the rector, and various eminent physicians in the capital have been appointed honorary professors in the nascent university.

Child Welfare Congress

Official notice has been received of the postponement of the Congreso del Niño, which was to have been held this month

in the city of Montevideo. Mexico had been invited to send delegates and had already appointed them.

Scarcity of Therapeutic Biologic Products

On account of the restrictions imposed on the exportation of therapeutic biologic products by the United States during the war just passed, there has been a notable scarcity of these curative agents. The production of therapeutic serums in the state Instituto Bacteriologico Nacional is not large, and in the private laboratories only bacterins are produced. There has been a special lack of antipneumococcus serum, and the little on hand has been held at exorbitant rates. It is hoped that in a short time this state of affairs will be remedied by the reestablishment of normal commercial relations.

Personal

Dr. F. Medina has been appointed secretary of the Mexican legation at Paris, and Dr. L. Rivero was given the position of third secretary. Both will soon leave for France, going by way of New York.

BUENOS AIRES LETTER

BUENOS AIRES, Nov. 11, 1918.

Epidemic of Influenza

From the middle to the end of October the epidemic spread until two thirds of the population had been attacked. Fortunately the mild cases predominated. The number of cases developing recently is smaller, but not the number of fatal cases. As a whole, however, the mortality has been much less than in the countries around us. In the last ten days of October there were 1,477 deaths, equal to the total death rate for the month of February. In the first five days of November, the average of deaths reached 162 daily, that is, twice the normal death rate of the city. Lesions in the lungs or bronchi or both were responsible for most of the fatal cases, but in some cases there were choleriform gastrointestinal symptoms suggesting cholera. Hemorrhages from the bowel, nose, etc., were not infrequent. Some of those affected presented eruptions resembling urticaria or measles, and exceptionally there was a hemorrhagic exanthem. Bacteriologic examination in the Hospital Muñiz revealed the Pfeiffer bacillus in the sputum of 60 per cent. of the patients, usually the graver cases. In a little more than 50 per cent., pneumococci or streptococci were found. In the fatal cases the Pfeiffer bacillus was found in 50 per cent., sometimes pure, but frequently associated with the pneumococcus or other germs.

The government, which neglected sanitary vigilance at the beginning, then took rigorous measures, closing the schools, cinemas, theaters and cafés. The public places were constantly disinfected, the streets profusely watered, etc.

The epidemic spread throughout the entire country, but nowhere has it yet acquired a gravity to compare with what has occurred in Rio de Janeiro and at Santiago in Chile.

Subscriptions for French Physicians

The national sympathy, which has always been on the side of the Allies, has just found expression anew in the subscriptions for the War Fund for French Physicians. The sum of 40,000 francs has been collected here for the fund.

Epidemics of Dysentery at Rioja and Catamarca

For the first time, dysentery has been officially recorded here and studied. There was an epidemic at Salta in 1917 and at Corrientes, but no bacteriologic work was done. The disease attacked children mostly, and the death rate was high. The predominant germs were the Flexner and atypical forms of dysentery bacilli. Diphtheria antitoxin gave appreciable results in treatment, but no decisive judgment is yet possible.

Dr. Escomel's Lecture

Dr. Edmundo Escomel of Arequipa, Peru, member of the Lima Academia de Medicina, recently delivered an address on intestinal trichomonosis at the Facultad de Medicina here.

Power of Students in Electing University Officers

The new government decree regulating the elections of officers for the universities provided that the dean, the Consejo Directivo and the Consejo Superior Universitario were to be elected by an assembly composed of the titular professors, an equal number of *profesores suplentes* and an equal number of students. The consequence was that the students made out lists and got every one of their candidates elected. In the Facultad de Medicina, Dr. Julio Mendez was elected dean; his nomination was resisted by the professors. When it came to a vote, he obtained the votes of fifty-eight students and of thirteen professors, while seventy-three of the professors cast their votes for Dr. Palma. The students then formulated diverse protests and declared a strike, insisting on the annulling of the electoral action. Dr. Palma then handed in his resignation, and a second assembly was held. On this occasion the students, without insisting on the annulling of the anterior election and without dwelling on the defects and irregularities on which they had previously laid great stress, succeeded in electing their candidate. It is very certain that the professors refrained from participating in this action.

This reform in the statutes of the university, as is readily seen, gives up the management of the university into the hands of the students.

PARIS LETTER

PARIS, Nov. 28, 1918.

Removal of Sequestrums and Repair of Bone

This question was discussed at the recent Congrès français de chirurgie. Dr. de Fourmestraux of Chartres specified the indications for sequestrectomy and for immediate resection at the time of operating, that is, during the first day after the wounding. He claims that abstention is indicated in cases of fracture caused by a bullet coming with full force from an average distance, the fracture not spreading, and containing germs but with little evidence of infection. Recovery is rapid in these cases, which, however, are rather infrequently met. More often it is a question of a comminuted fracture, caused by a shell fragment or a bullet fired at a short distance with explosive effect, which scatters fragments of its jacket on its way. Instead of armed abstention, complete and thorough intervention is indicated. In cases of epiphyseal fracture, the projectile should be located roentgenographically and removed from the nearest surface point without heeding the portal of entry, then proceed to the closure of the articulation and early mobilization.

Dr. Viannay of Saint-Etienne has always obtained speedy results with Ollier's or Leriche's subperiosteal sequestrectomy or the intra-osseous operation of Tuffier. It is hardly possible to keep these patients in the advanced hospitals more than a few weeks, but they recover so quickly that when they leave the ambulance anatomic and functional restoration is complete in some by the eighth week.

Dr. Duvergey of Bordeaux, on the other hand, performs primary sequestrectomy very seldom, in fact, only when the sequestrum is completely denuded of periosteum. The operation required in recent complicated fractures: *débridement*, extraction of the foreign body, and clearing out of the wound, should respect the bone tissue. Carrel's method should be instituted as soon as possible because it overcomes infection effectively, and infection is a factor in the etiology of neuroses. Secondary sequestrectomy is done frequently, but it is indicated only when the presence of the sequestrum is confirmed by the roentgen ray and the probe. The clearing out then should be thorough so as to obviate repeated operations which fatigue and discourage the patient and often disseminate the infection and increase the trauma.

Dr. Salva Mercadé of Paris insists that not only must the adherent sequestrums be respected, but also the ends of the bone fragments themselves, with their stalactites and stalagmites which favor repair. Smoothing of the bone ends is one of the causes of pseudarthroses. Mercadé believes that primary sequestrectomy should be the rule; of thirty-eight patients operated on, only seven required a second operation. He reported sixty-four cases of compound fracture in which sequestrectomy was not done primarily, in which all came to late operation, necessitating much longer treatment. He claims that a compound fracture never escapes sequestrectomy; if not done early it must be done later, and it is in the interests of the patient to operate early.

So far as concern repair of losses of bone substance, surgeons resort to *plombage*, osteosynthesis or grafting as the case indicates. Dr. Duvergey condemns *plombage*, no matter what the substance employed to fill the cavity, because it is eliminated eventually. Dr. Olivier of Paris reported a case in which two *plombages* were done with six months' interval, and the local and general disturbances therefrom nearly necessitated the amputation of the member, and compelled two supplementary operations to remove the filling. Osteosynthesis is indicated in cases with great loss of bone substance and in which cicatrization appears to be impossible. Dr. Patel of Lyon reported fifty cases of osteosynthesis (thirteen of femur, twelve of tibia, twenty-four of humerus,

and one of forearm) with only one failure (humerus). Union was effected in from two to six months.

As for bone grafting, surgeons are agreed that this operation should be deferred until several months after the closure of an infected wound. The graft can only be placed itno an aseptic bed. There must not be any scabs or skin eruptions, particularly not eczema, on or near the field of operation. The skin around might be curetted. Otherwise the graft is extruded, when everything must be done over again.

Summer Outings for Children

During the last summer of the war these summer outings for the schoolchildren became quite a feature. Many thousands of small Parisians were thus enabled to escape the menace of German bombs. In a report to the Paris city Council, M. Jean Varenne, commented favorably on the excellent results obtained in the eighteenth arrondissement of Paris by 1,400 children and seventy-six teachers from a stay of several months in the country. He asked that the Conseil municipal continue these outings during peace times because of the important bearing which they have on the future of the race (une oeuvre qui, pour l'avenir de la race, est du plus haut intérêt).

LONDON LETTER

LONDON, Dec. 11, 1918.

The Health of Schoolchildren

The annual report of the chief medical officer of the board of education, Sir George Newman, has just been published. It contains results claimed to be "of exceptional value and extraordinary interest." A test inquiry into the physical condition of town and country children was made without previous warning. The number of children inspected was 1,362,063. In the London group, 7 per cent., and in the country group, 10 per cent. of the elder children were found to be absent from school on grounds of more or less chronic ill health, and after deduction of the blind, deaf, mentally and physically defective and invalid children of this age group drafted to special schools or absent from school, there were found to be suffering from one or more serious defects 24 per cent. of the children present at school. Of these children, 12 per cent. were ill nourished and 19 per cent. were unclean in body. Of the London children, 40 per cent., and of the country children, 65 per cent. had some carious teeth; 11 per cent. suffered from disease of the nose and throat; 10 per cent. had "very serious" defects of vision, while another 13 per cent. had defective eyesight of slightly less severity; 6 per cent. suffered from defective hearing and 6 per cent. from "severe" anemia; 4 per cent. had middle ear disease, 4 per cent. organic heart disease, 4 per cent. skin disease, and 4 per cent. spinal curvature of the "worst grade." These defective children were often two or more years behind their normal school standard, showing how physical weakness reacts on mental efficiency. Effective treatment of the kind now carried on by the board of education confers great benefit. Thus, London had sound teeth in 60 per cent., the country (where treatment is less thorough) in only 35 per cent. London had only 5 per cent. with disease of nose and throat, the country 21 per cent. London furnished only 2 per cent. of verminous heads, the country 8 per cent. Strenuous measures were taken in cleansing the children from vermin. One of the effects of the war has been the increase of uncleanliness and its associate conditions (verminous heads and bodies, ringworm, scabies, conjunctivitis, etc., owing partly to the lessening of parental supervision and partly to the introduction of infection from returning troops. Coming to the effects of the war on the children generally, Sir George Newman declares that the fear that the food rationing would bear hardly on the children has not been realized. In London it was found that the percentage of children in poorly nourished condition in the third term of 1917 was "considerably less than half the percentage found in 1913, the year before the war." Indeed, the figures for the third term of 1917 were the best in this respect ever obtained. The idea that "war bread" caused any bad symptoms was not confirmed on inquiry. Air raids, too, failed to affect the health of children, as it had been feared they might do.

Medical Representation in Parliament

The country is now in the throes of a general election in which the main appeal made by Mr. Lloyd George and his colleagues is that the men who brought the war to a successful conclusion should govern during the period of reconstruction. Medical questions scarcely enter into the election and certainly are not issues. In a previous letter, the formation of a medical parliamentary committee to insure a greater representation of the profession in Parliament was announced. For the nearly 700 seats of the House of Commons the number of medical candidates amounts to thirty-one. It does not appear that the medical parliamentary committee had anything to do with bringing forward any of these candidates, but it is offering to supply speakers to support medical candidates. The idea is that medical members of Parliament should do everything possible in promoting measures to improve the health of the people. Most of the medical candidates are appealing for support as members of the various political parties and, therefore, not as physicians; but in the case of the elections for the universities, for which there are six medical candidates, a special appeal is being made to the medical graduates, who form a large proportion of the electors. These candidates are all men of professional eminence. They are Sir William Whitla (Queen's University, Belfast); Sir Robert Woods (Dublin University); Sir Wilmot Herringham (London University); Sir Watson Cheyne, Dr. Peter MacDonald and Principal W. R. Smith (Scottish universities).

White Bread Again

With the cessation of hostilities, the use of a dark flour constituting a high percentage of the grain is no longer compulsory, and white bread again appears on our tables, to the great satisfaction of most persons. It is curious that although both before the war and during the war the advantages of whole-meal bread, or something approaching it, were pointed out, no impression has been made on the public. Even a press campaign by the most widely read newspaper produced little effect. In spite of dietetic teaching, people prefer what is more pleasing to the eye and gratifying to the palate, white bread.

The Influenza Epidemic

The influenza epidemic is declining in the United Kingdom, but new cases still occur, and pneumonia continues to take a serious toll of life. In India the epidemic has been severe. In Bombay city there were 15,000 deaths, and in Delhi city, of a population of 200,000, the death rate at one time reached 800 daily. In the rural tracts beyond the reach of effective prophylactic measures, the loss has been tremendous. In the Punjab the first signs appeared in August. In September it persisted in a mild form, and from the middle of October until November 8 it was acute. It is estimated that the number of deaths ranges from 5 to 10 per cent. of the population. The death roll is heaviest among young adults and women. The number of deaths in the Punjab is estimated at 250,000. When the final results of the epidemic are summed up, it will probably be found that other provinces have suffered on approximately the same scale. No part of the country seems to have escaped, although the visitation was lightest in Bengal, and even the dry and bracing Himalayan tracts are reported to have been severely attacked.

Venereal Disease and Demobilization

In the middle ages, outbreaks of syphilis followed in the wake of armies. The danger of diffusion of venereal diseases on the demobilization of the present huge armies is therefore to be borne in mind. It is estimated that 2 per cent. of the British army is affected by venereal disease, a proportion which is regarded as much lower than that of the adult civil population. The medical instruction of soldiers with a view to prevention, and the adoption of early treatment, explain the difference. However, the total number of infected soldiers and sailors is estimated at from 200,000 to 300,000, which constitutes a grave danger to the civilian population on demobilization, when the disciplinary influence of army life will cease. The National Council for Combating Venereal Diseases has published recommendations which will no doubt receive the careful consideration of the authorities. The most important is the suggestion that soldiers or sailors should not be discharged while in an infective state.

Marriages

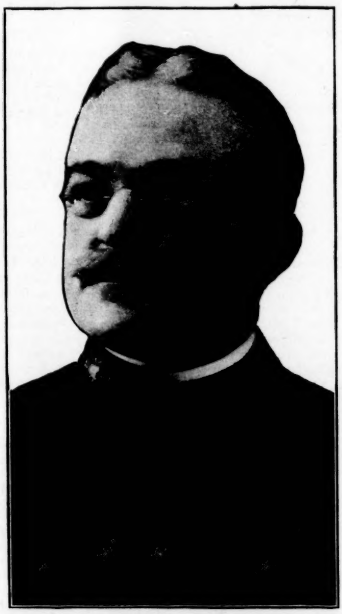
ALFRED E. RHEIN, Rosedale, Ind., to Miss Susan Pillars Miller, Terre Haute, Ind., November 5.

PHILIP EMBURY, to Miss Marie Katherine Stein, both of Basking Ridge, N. J., December 18.

EDWARD JAMES LEWIS, to Miss Katherine Sproehnle, both of Chicago, December 18.

Deaths

Rear Admiral Henry Gustav Beyer ⊕ Medical Director, U. S. Navy, retired; aged 68; died at his home in Washington, December 10. Dr. Beyer was born in Saxony, Germany, October 28, 1850, received his preliminary education and took a course in pharmacy in Germany, and then entered Bellevue Hospital Medical College, from which he was graduated in 1876. He received the M. R. C. S. degree in London, in 1881, and was given the degree of Ph.D. by Johns Hopkins University, in 1887. He entered the Navy, as assistant surgeon, immediately on graduation, was made passed assistant surgeon in 1880, surgeon in 1893, medical inspector in 1905, medical director in 1910, and rear admiral, Feb. 27, 1911, and was retired on attaining the age of 62 years, Oct. 28, 1912. During his thirty-six years of service in the Navy, he had twelve years and ten months of sea service, and three years on special duty at the Smithsonian Institution, Washington, and was on special duty in Washington, for two years. He was professor of hygiene in the Naval Medical School, Washington, from 1904 to 1912, and was also lecturer on Naval Hygiene in the War College, Newport, R. I. He was a member of the Association of Military Surgeons of the United States, National Society for the Study and Prevention of Tuberculosis, American Public Health Association, and American Association of Pathologists and Bacteriologists, and was a prolific contributor to medicomilitary literature.



REAR ADMIRAL HENRY G. BEYER, M. C., U. S. NAVY, 1850-1918

Hudson J. Winnett, Lincoln, Neb.; Long Island College Hospital, 1870; aged 72; at one time a member of the Nebraska State Medical Association; formerly a member of the City Council and mayor of Lincoln, and state railway commissioner in 1906; trust officer of the Lincoln Trust Company; died in Johns Hopkins Hospital, December 19, after a surgical operation.

William T. Wright, Denison, Iowa; University of Michigan, Ann Arbor, 1882; aged 62; a member of the Iowa State Medical Association and formerly secretary of the Crawford County Medical Society and physician of Crawford County; formerly coroner of Monona County; died at the home of his brother-in-law in Ute, Iowa, November 30, from pneumonia following influenza.

Asa Charles McCurdy ⊕ Major, M. C., U. S. Army, Battle Creek, Mich.; University of Michigan, Ann Arbor, 1908; aged 32; who after training at Camp Crane, Allentown, Pa., went to Italy and was then transferred to France, and attached to the Fifty-Second Engineers; died in Brest, France, November 28, from the effects of a carbuncle on the face.

Charles Hedinger, Canton, Kan.; University of Goettengin, Hanover, Germany, 1842; aged 96; for two years and a half a surgeon in the United States Navy, and later in the Medical Corps, U. S. Army, and surgeon throughout the Civil War; coroner of Pottawatomie County, Kan., for eleven years; died at his home, December 12, from acute gastritis.

Arthur Holmes Brown ⊕ Auburn, N. Y.; Long Island College Hospital, Brooklyn, 1882; aged 64; formerly president of Cayuga County Medical Society, and Auburn Academy of Medicine; a director of the New York State Automobile Association; was instantly killed in an automobile accident, near Camillus, N. Y., December 19.

George K. Sims, Richmond, Va.; University of Virginia, Charlottesville, 1894; aged 53; a member of the Medical Society of Virginia; Acting Assistant Surgeon, United States Army, for four years during and after the Spanish-American War with service in the Philippine Islands and Hawaii; died at his home, recently.

Millville Charles Korb, Chicago; Bennett Medical College, Eclectic, Chicago, 1896; University of Illinois, Chicago, 1907; aged 50; a member of the Illinois State Medical Society; died in the Washington Boulevard Hospital, Chicago, December 21, from nephritis.

George Baney Wolff ⊕ Towson, Md.; Johns Hopkins University, Baltimore, 1912; aged 33; a member of the staff of the Sheppard and Enoch Pratt Hospital, Towson; was shot and instantly killed by Dr. Noburu Ishida, a Japanese member of the staff, December 21.

Paul Morgan Strother ⊕ Lynchburg, Va.; University of Virginia, Charlottesville, 1906; aged 34; a specialist in roentgenology; died November 26, as the result of injuries received in the overturning of his automobile the day before.

Samuel Cecil Bowen, Richmond, Va.; Medical College of Virginia, Richmond, 1905; aged 37; a member of the Medical Society of Virginia; associate professor of laryngology in his alma mater; died in Chicago, December 20, from pneumonia following influenza.

Reese Davis ⊕ Lieut., M. C., U. S. Army, Forest City, Pa.; Jefferson Medical College, 1916; aged 25; formerly intern in the State Hospital of the Northern Anthracite Region of Pennsylvania, Scranton; died in France, September 27, from wounds received in action.

William Chester Smith ⊕ Captain, M. C., U. S. Army, Chicago; University of Louisville, Ky.; 1904; University of Illinois, Chicago, 1913; aged 38; on duty at Camp Sherman, Chillicothe, Ohio; died at that post, December 11, from valvular disease of the heart.

William Pounder Gillespie, Jr. ⊕ Philadelphia; Jefferson Medical College, 1904; aged 37; assistant medical examiner for the Pennsylvania System, at the Broad Street Terminal; died in the Presbyterian Hospital, Philadelphia, October 9, from lobar pneumonia.

William F. Carroll, Macon, Ga.; Medical College of Georgia, Augusta, 1877; aged 68; at one time a member of the Medical Association of Georgia; city physician of East Macon for several years; died at his home, November 30.

Homer Joseph Slocum ⊕ Lieut., M. C., U. S. Army, Carrollton, Ky.; Louisville, Ky., Medical College, 1903; aged 39; on duty at Camp Greenleaf, Fort Oglethorpe, Ga., died at that post, October 17, from pneumonia following influenza.

Robert Newcomb McHenry, Millville, N. H.; University of Pennsylvania, Philadelphia, 1912; aged 29; a member of the Medical Society of New Jersey; coroner of Cumberland County; died in a hospital in Philadelphia, December 17.

Edward B. Greene, Chicago; Northwestern University Medical School, Chicago, 1885; aged 64; at one time a member of the Illinois State Medical Society; died in the North Chicago Hospital, Chicago, December 17, from diabetes.

Edward Sherman Breese ⊕ Dayton, Ohio; Medical College of Ohio, Cincinnati, 1899; aged 52; for several years resident surgeon at the National Military Home, Dayton; died at his home, December 15, from carcinoma of the stomach.

William George Turner ⊕ Captain, M. C., U. S. Army, Fall River, Mass.; Baltimore Medical College, 1904; aged 39; on duty at Fort Benjamin Harrison, Ind.; died at that post, October 11, from pneumonia following influenza.

Joseph Randall Polk, Nashville, Tenn.; Vanderbilt University, Nashville, 1918; aged 27; died at an infirmary in Nashville, December 1, from pneumonia following influenza.

James Richard Kirby, Clinton, Mass.; Baltimore Medical College, 1902; aged 42; a member of the Massachusetts Medical Society; died at his home, September 29, from bronchial pneumonia following influenza.

George M. Paullin, Bridgeton, N. J.; University of Pennsylvania, Philadelphia, 1861; aged 79; Acting Assistant Surgeon in the Army during the Civil War; died at his home, September 18, from heart disease.

Luther A. Rexford, Minneapolis, Minn.; Minneapolis College of Physicians and Surgeons, 1907; aged 36; at one time a member of the Minnesota State Medical Association; died at his home, about December 20.

Abram C. Miller, Turin, N. Y.; University of Vermont, Burlington, 1876; aged 70; health officer of the town and village of Turin and town of Grieg; died at his home, October 13, from pneumonia.

Francis Robert DiMatteo, Newark, N. J.; Baltimore, Md., Medical College, 1903; aged 37; a member of the Medical Society of New Jersey; died at his home, October 13, from pulmonary tuberculosis.

Edwin Franklin Syrop ✠ **Lieut., M. C., U. S. Army,** Bayonne, N. J.; University of Maryland, Baltimore, 1916; aged 28; died in Base Hospital No. 78, France, October 27, from lobar pneumonia.

Thomas David Stephens, Penn Run, Pa.; University of Pittsburgh, 1895; aged 50; a member of the Medical Society of the State of Pennsylvania; died in the Indiana, Pa., Hospital, December 13.

William James Douglas, Newark, N. J.; University and Bellevue Hospital Medical College, New York City, 1908; aged 34; died at his home, October 16, from pneumonia following influenza.

Joseph M. Shorts, West Liberty, W. Va. (license, West Virginia, 1881); aged 66; died at the North Wheeling, W. Va., Hospital, December 18, from pneumonia following influenza.

Charles W. Ott ✠ Higginsville, Mo.; Kansas City, Mo., Homeopathic Medical College, 1899; aged 40; died at his home, October 4, from lobar pneumonia, following influenza.

Russell Ernest Boyle, Alliance, Alberta; University of Manitoba, Winnipeg, 1916; aged 30; died at his home, November 10, from pneumonia following influenza.

Davis King Summers ✠ **Lieut., M. C., U. S. Army,** Chattanooga, Tenn.; Emory University, Atlanta, Ga., 1915; aged 30; was killed in battle in France, March 1.

Louis Aimé Maynard, Worcester, Mass.; University of Vermont, Burlington, 1889; aged 58; died in his apartment, December 5, from pulmonary hemorrhage.

Otto Andrew Koch, Germantown, Philadelphia; University of Pennsylvania, Philadelphia, 1896; aged 47; died at his home, October 30, from tuberculosis.

Lynn Luzerne Lorenz ✠ Rockford, Iowa; University of Illinois, Chicago, 1912; aged 29; died at the home of his parents in Rockford, December 1.

Adolphe Olivier, Montreal, Que.; Laval University, Montreal, 1918; aged 27; died in Montreal in October from pneumonia following influenza.

Aristide Dubuc, Montreal, Que.; Laval University, Montreal; aged 28; died in Montreal in October, from pneumonia following influenza.

Frank Justin Barker, Concord, Mass.; Dartmouth Medical School, Hanover, N. H., 1888; aged 56; died in Carthage, N. Y., December 14.

Romeo Picotte, Montreal, Que.; Laval University, Montreal, 1918; aged 26; died in Montreal, in October, from pneumonia following influenza.

Frank Marion Mullins, Fort Worth, Texas; Bellevue Hospital Medical School, 1883; aged 54; died at his home, December 11.

Emily James Davis, Marion, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1892; aged 48; died at her home, December 8.

Oswald W. Cosby ✠ Monroe, La.; Marion-Sims College of Medicine, St. Louis, 1896; aged 43; died at his home, in October.

Charley I. Hammond, Baltimore; Maryland Medical College, Baltimore, 1905; aged 50; died at his home, November 21.

John Ivison, Coatesville, Pa.; University of Pennsylvania, Philadelphia, 1874; aged 71; died at his home, October 15.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MISBRANDED NOSTRUMS

How the Bureau of Chemistry Is Protecting the Public Against Fraudulent or Misleadingly Advertised "Patent Medicines"

Paine's Celery Compound.—Shipped by Wells & Richardson Co., Burlington, Vt. Analysis showed alcohol, 18.5 per cent., potassium nitrate, sugar and glycerin, with calisaya, celery, blackhaw and sarsaparilla indicated. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5021.*]

Botanic Blood Balm.—Shipped by Wm. R. Warner & Co., Philadelphia. Analysis showed alcohol, 14.6 per cent., potassium iodid, arsenic trioxid, and guaiac, with sarsaparilla and senna indicated. Falsely and fraudulently advertised. Fine, $200.—[*Notice of Judgment No. 5022.*]

Owens' Wonderful Sore Wash.—Shipped by Wedard W. Zurhellen, manager of the Sore Wash and Eye Lotion Co., Natchez, Miss. Analysis showed hydrastin, zinc salt, sulphate, chlorid and sodium present. Falsely and fraudulently advertised. Fine, $10 and costs.—[*Notice of Judgment No. 5023.*]

Lafayette Cough Syrup.—Shipped by Lafayette Co., Berlin, N. H. Analysis showed 75 per cent. sugars, 7.34 per cent. alcohol, ipecac alkaloids, wild cherry, and a trace of benzoic acid. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5024.*]

Gilbert's Gravel Root Compound.—Shipped by Thomas H. Gilbert Drug Co., Huntsville, Ala. Analysis showed over 14 per cent. alcohol with lithium, benzoic acid, and emodin, and indications of cascara, licorice and juniper. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5025.*]

Strange's Rheumatic Remedy.—Shipped by Howell M. Strange, Birmingham, Ala. Analysis showed the product to be, essentially, a mixture of baking soda and magnesium carbonate. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5028.*]

Baur's Diamond Brand Bromides.—Shipped by the Liquid Carbonic Co., Minneapolis. Analysis showed the preparation to be a granular effervescent salt, containing chiefly baking soda, citric acid, Epsom salt, a small amount of caffein and but a trace of bromid. Falsely and misleadingly advertised. Fine, $10.—[*Notice of Judgment No. 5035.*]

S. B. Cough & Consumption Remedy.—Shipped by the Blumauer-Frank Drug Co., Portland, Ore. Analysis showed alcohol, morphin sulphate, chloroform, tar and sugar. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5063.*]

Gowan's Preparation.—Shipped by the Gowan Medical Co., Chicago. Analysis showed that the product consisted, essentially, of a wool-fat vehicle containing about 12 per cent. camphor, 0.7 per cent. quinin sulphate and about 20 per cent. of water. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5084.*]

Urol.—Shipped by Joseph C. Ligeour and Chesleigh A. Holtzendorf, who traded as the Standard Chemical Co., Fitzgerald, Ga. Analysis showed that Urol was a solution of volatile oils in balsam. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5085.*]

Boxenbaum Discovery.—Shipped by Beni Boxenbaum, who traded as Boxenbaum, Son & Co., Philadelphia. Analysis showed the stuff to be, essentially, a watery solution of potassium bromid, with a small amount of a cathartic drug. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5089.*]

Tablets Creavita.—Shipped by Inter-American Pharmacal Corp., New York City. Analysis showed the tablets to contain, essentially, chromium sulphate, calcium carbonate, phenolphthalein, strychnin and starch. Falsely and fraudulently advertised. Company pleaded guilty; sentence suspended.—[*Notice of Judgment No. 5120.*]

Old Lady Fulten's Comforting Pills.—Shipped by Sharp & Dohme, New York City. Analyses showed the pills were composed, essentially, of reduced iron, strychnin, and a laxative drug. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5122.*]

C. C. C. (Crownall Elastic Capsules).—Shipped by Hance Bros. & White, Philadelphia. Analysis showed these to be gelatin capsules containing, essentially, oil of cubeb and balsam of copaiba. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5123.*]

Victor Injection, No. 19 Compound, No. 6 Compound.—Shipped by the Victor Medicine Co., St. Louis. Analyses showed "Victor Injection" to be an aqueous solution of ichthyol; "No. 19 Compound" and "No. 6 Compound" to be essentially milk sugar. All three products falsely and fraudulently advertised. Fine, $600.—[*Notice of Judgment No. 5124.*]

Hemogenas Pills.—Shipped by Sharp & Dohme, New York City. Analysis showed the pills to be compounded, essentially, of reduced iron, a small amount of unidentified alkaloid, a laxative drug, and phosphorus compounds. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5125.*]

Restorative Tablets—Fountain of Health.—Shipped by Sharp & Dohme, New York City. Analysis showed the tablets to contain, essentially, reduced iron, quinin, strychnin, and a laxative drug. Falsely and fradulently advertised. Fine, $10.—[*Notice of Judgment No. 5126.*]

Denn's Strong, Sure, Safe and Speedy Stomach, Liver, Kidney, and Rheumatism Remedy.—Shipped by Henry Denn, trading as Denn's Rheumatic Cure Co. Analysis showed alcohol, 8.2 per cent., over 50 per cent. of sugar, traces of glycerin, and indications of licorice and cascara sagrada. Falsely and fraudulently advertised. Fine, $50 and costs.—[*Notice of Judgment No. 5130.*]

Dr. Navaun's Mexican Lung Balm, and Kidney Tablets.—Shipped by Edward S. and Clifford S. Navaun, trading as the Botanic Drug Co., Detroit. Analyses showed the "Lung Balsam" to be, essentially, a syrup containing vegetable extractives and small quantities of chloroform and alcohol, and the "Kidney Tablets" to contain methylene blue, potassium nitrate, juniper, and calcium carbonate. Both were falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5131.*]

Dr. Chas. De Grath's Electric Oil.—Shipped by Margaret Hutton Kemp, Samuel H. Ordway and Edward C. Mears Kemp, executors of the estate of George William Kemp, trading as Lanman & Kemp, New York City. Analysis showed the product to consist, essentially, of fixed saponifiable oil, turpentine, oil of cinnamon, ammonium compounds and chloroform, with indications of the presence of a small amount of mineral oil. Falsely and fradulently advertised. Fine, $20.—[*Notice of Judgment No. 5136.*]

Bovinine.—Shipped by the Bovinine Co., New York City. Analysis showed the product to be a blood preparation containing 11 per cent. alcohol, and over 6 per cent. glycerin. Falsely and fraudulently advertised. Company pleaded guilty; sentence suspended.—[*Notice of Judgment No. 5170.*]

Fritch's Vegetable Liniment.—Shipped by John A. Fritch, St. Louis. Analysis showed it to be essentially an alcoholic solution of chloroform, turpentine, camphor, capsicum, oil of cloves, methyl salicylate, and free ammonia. Falsely and fraudulently advertised. Fine, $20 and costs.—[*Notice of Judgment No. 5171.*]

Perkins' National Herbs Blood Purifier Kidney and Liver Regulator.—Sold by National Herb Co., Washington, D. C. Analysis showed it to contain practically 40 per cent. sugar, 11 per cent. carbonate of lime, with a cathartic drug and strychnin present. Falsely and fraudulently advertised. Fine, $75.—[*Notice of Judgment No. 5175.*]

Dr. Lemke's Golden Electric Liniment, and St. Johannis Drops.—Shipped by C. H., E. S., C. R., and W. H. Lemke, A. Cromer, and C. Cross, who traded as Dr. H. C. Lemke Medicine Co., Chicago. Analysis showed the "Golden Electric Liniment" to contain over 62 per cent. alcohol, with chloroform, free ammonia, camphor, and red pepper present, and oil of sassafras and volatile oil of mustard probably present. Analysis showed the "St. Johannis Drops" to contain 43 per cent. alcohol, with morphin, camphor, a laxative drug, red pepper and aromatic oils present. Both products falsely and fraudulently advertised. Fine, $5 and costs.—[*Notice of Judgment No. 5176.*]

Mentholatum.—Shipped by Edward K. Hyde, trading as the Mentholatum Co., Buffalo. Analysis showed the product to be essentially petrolatum, with about 5 per cent. boric acid and 10 per cent. menthol and camphor. Falsely and fraudulently advertised. Fine, $10.—[*Notice of Judgment No. 5178.*]

Enteronol.—Shipped by the Enteronol Co., Oswego, N. Y. Analysis showed the preparation to consist essentially of alum, camphor, ginger, red pepper, tannic acid and phenolphthalein. Falsely and fraudulently advertised.[1] Fine, $200.—[*Notice of Judgment No. 5179.*]

Dr. Harter's Lung Balm.—Sold by the Dr. Harter Medicine Co., Philadelphia. Analysis showed the preparation to contain over 60 per cent. sugar, 3.65 per cent. alcohol, chloroform, cinnamic acid and plant extractive material, with indications of traces of antimony and tartrates. Falsely and fraudulently advertised. Fine, $200.—[*Notice of Judgment No. 5188.*]

Dr. O. Phelps Brown's Herbal Ointment.—Shipped by the Kells Co., New York City. Analysis showed the preparation to be essentially 98.5 per cent. petrolatum, and 1.5 per cent. salicylic acid. Falsely and fraudulently advertised. Fine, $50.—[*Notice of Judgment No. 5212.*]

Taylor's Horehound Balsam.—Shipped by W. Scott Taylor, trading as the Taylor Drug and Chemical Co., Trenton, N. J. Analysis showed the preparation to contain 14.5 per cent. alcohol, 46.7 per cent. sugar, with chloroform, methyl salicylate, horehound, camphor, and a trace of ipecac. Falsely and fraudulently advertised. Taylor pleaded guilty; sentence suspended.—[*Notice of Judgment No. 5214.*]

Breeden's Rheumatic Cure.—Shipped by Carroll C. Breeden, trading as the Breeden Medicine Co., Memphis, Tenn. Analysis showed the product to contain 12.6 per cent. alcohol, with potassium iodid, guaiac and probably extract of colchicum seed and colocynth. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5224.*]

Sulphur Bitters.—Shipped by Allen P. Ordway, trading as A. P. Ordway & Co., New York City. Analysis showed the product to have over 21 per cent. alcohol, with sulphur, aloes and another laxative drug present, and with indications of wild cherry. Falsely and fraudulently advertised. Fine, $25.—[*Notice of Judgment No. 5234.*]

Dr. DeWitt's Eclectic Cure; Dr. DeWitt's liver, Blood and Kidney Remedy.—Shipped by W. J. Parker, trading as W. J. Parker Co., Baltimore. Analysis showed the "Eclectic Cure" to consist essentially of alcohol, water, ether, oil of sassafras, red pepper, and opium alkaloids, with lobelia indicated. The "Liver, Blood and Kidney Remedy" was shown by analysis to consist essentially of an alcohol-water extract of buchu and rhubarb, with iodids, nitrates, chlorids, and sulphates of magnesium, calcium, sodium and potassium. Falsely and fraudulently advertised. Fine, $20 and costs.—[*Notice of Judgment No. 5240.*]

Payne's Sylax.—Shipped by Edward C. Seyler, trading as the German Medicine Co., Cincinnati. Analysis showed the preparation to consist essentially of a laxative drug, plant

1. This nostrum was examined by the chemists of the A. M. A. Chemical Laboratory ten years ago, and the fraudulence of the product was declared in THE JOURNAL, March 21, 1908.

extractive matter, Epsom salt, sugar, alcohol and water, with a white powder at the bottom of the bottle, consisting principally of sulphate of lime. Falsely and fraudulently advertised. Fine, $25 and costs.—[*Notice of Judgment No. 5269.*]

Dr. Bell's Pine Tar Honey.—Sold by E. E. Sutherland Medicine Co., Philadelphia. Analysis showed it to be an alcohol-water solution, containing ammonia, glycerin, pine tar, sassafras, red pepper, reducing sugars, a laxative drug and alkaloids. Falsely and fraudulently advertised. Fine, $100.—[*Notice of Judgment No. 5271.*]

Lung Germine.—Shipped by the Lung Germine Co., Jackson, Mich. Analysis showed the preparation to be a water-alcohol solution, containing free sulphuric acid and iron sulphate. Falsely and fraudulently advertised.[1] Fine, $50.—[*Notice of Judgment No. 5280.*]

Correspondence

EFFECT OF INFLUENZA ON THE HEART

To the Editor:—Many physicians, no doubt, have frequently seen cases of influenza in which, usually after the fever has subsided, the pulse is slow and easily compressed, and the patient complains of dizziness, extreme weakness and depression, and on attempting to get up often falls into a faint.

Examination usually reveals a slow heart with sounds somewhat muffled, giving the impression to the ear of a tired out heart. This condition is usually taken to be one of myocarditis, and frequently it has been stated that in the future we shall have a great many cases of myocarditis and other heart conditions to contend with.

In taking the blood pressure, invariably I have found the diastolic pressure perfectly normal. The systolic is usually very low, so that the pulse pressure is anywhere from 15 to 20. This condition I have seen about once in every twenty or twenty-five cases of influenza under my care, and it has appeared in cases showing the very mildest or slightest degree of infection, as well as in the severer types. The fact that it appears in the mildest type of infection, in which the fever is very low and lasts only three or four days, as well as in the severer types, would lead me to believe that it is not due to an infection of the heart muscle itself, but rather to some disturbance in the factors that control the blood pressure.

It has been pointed out that severe infections, including influenza, frequently produce a disturbance of the suprarenal gland. For this reason I have used in all these cases the suprarenal gland or its extract, giving usually 10 drops of the 1:1,000 solution under the tongue every three hours. Within twenty-four hours there is usually a very decided change in the clinical condition of the patient. The dizziness and extreme depression are gone and the pulse rate increases from 10 to 15 beats per minute, the pulse pressure also increases, and within a few days the patient is comparatively well.

I do not mean to imply that myocardial or endocardial lesions do not occur, as they undoubtedly do in any such severe infection as influenza. However, I do feel that the majority of the heart manifestations we encounter are of the type described above.

S. R. SALZMAN, M.D., Toledo, Ohio.

HELPING PHYSICIANS WHO HAVE HELPED THE GOVERNMENT

To the Editor:—There have been a large number of physicians who have profited professionally by the work they have been assigned while in the government service, by virtue of having been given base hospital assignments, intensive instruction courses, etc. On the other hand there have been a very large number who have been assigned administrative work, field work, etc., which has caused their real professional value to a community to deteriorate while in the service. Since as the government has arrangements for giving intensive instruction at certain clinics, I believe it would be only fair for them to make this instruction available for those who have had no such opportunities during their active war service.

I understand that the provision for an extra month's pay from date of discharge will not apply to members of the Reserve Corps unless they are discharged on account of physical disability; also there has been no opportunity for them to take advantage of the month's vacation out of each year which accumulates for those holding permanent commissions. If these statements are correct, they are additional arguments in favor of the foregoing plan.

Please do not publish my name or address.

M. M. C.

QUALIFIED PHYSICIANS DESIRED IN FLORIDA

To the Editor:—There has been considerable criticism from time to time by men from other states because the medical laws of Florida do not permit of reciprocity in medical licensure. In justice to the people and the medical fraternity of Florida I wish to state that we would have no objection to reciprocity of medical licensure between other states and Florida if it could be restricted to high grade men who are graduates of our best medical schools. An examination of the records shows, however, that literally thousands of requests for reciprocity have been received by the secretary of the Regular Board of Medical Examiners of Florida, and that a very large percentage of these are from men who are graduates of low grade schools. Many letters show extreme illiteracy, stamping the writers as uneducated men. Some letters have been threatening.

Florida offers as good a field for qualified medical men as any state in the Union today. In fact, we urge and welcome high grade men to locate in Florida. The officers of the state medical society will gladly cooperate in placing men in suitable locations. The examinations are exceedingly fair and our medical associations growing stronger, with medical fellowship better than ever before. We urge and welcome men from high grade schools to come and locate in "the Land of Flowers."

FRED J. WALTER, M.D., Daytona, Fla.
President, Florida Medical Association.

"THE 'ACRID PRINCIPLE' OF CERTAIN PLANTS"

To the Editor:—I note in THE JOURNAL, Dec. 7, 1918, p. 1917, an editorial comment on "The 'Acrid Principle' of Certain Plants." You cite the work of Brown and Anderson at the Pharmacological Laboratory of the University of Minnesota respecting the cause of acridity in certain plants. I called attention to the facts cited in the editorial in an article published in *Science*, 1903, **18,** 115. My attention was called to the matter by Mr. W. E. Safford, botanist in the Bureau of Plant Industry. He said that he had heard it stated that the acridity of certain plants mentioned, such as the *Colocasia* and *Arisaema triphyllum*, was due to this cause, and requested that I have an examination made of them. As described in the article mentioned, I turned the matter over to Mr. B. J. Howard, microscopist of the Bureau of Chemistry. Soon after beginning the examination he came to me in quite an excited manner and asked me to witness a most peculiar phenomenon. In the field of the microscope I saw some oblong objects, not unlike extremely attenuated balloons of the Zeppelin type. In a short time I saw a sharp arrow discharged from one of these bundles, producing a slight recoil in the balloon. Soon thereafter a number of arrows were discharged simultaneously, the arrows going quite a distance in the field of the microscope and producing a corresponding recoil. It was, indeed, a true bombardment. The bundles of crystals (raphides) served as guns, and the slender sharp arrows of calcium oxalate were the missiles. It was truly a most remarkable display. It is easy to see how these extraordinarily sharp points discharged against the mucous sur-

1. "Lung Germine," a fraudulent consumption cure was exposed by the Propaganda department of THE JOURNAL some years ago. The matter appears in the pamphlet, "Consumption Cures," published by the American Medical Association, price 20 cents.

face produce the intense pain and irritation which the chewing of plants of this kind causes. Mr. Safford told me that among the Polynesians, with whom he had lived for a considerable length of time, these calcium oxalate bearing plants are some of the principal foods. They have to be well cooked before they are eaten. The cooking probably dissolves the crystals, and the plants are then eaten without injury or irritation. The *Colocasia* is the food product generally employed. If the Indian turnip, *Arisaema triphyllum*, is pulverized and the juice expressed and placed in the mouth, no sensation of acridity is experienced. This indicates either that the crystals of calcium oxalate are not expressed with the juice, or else that they do no harm unless shot out of the little cannon. The article in *Science* ends with this paragraph:

While not fully established, there is presumptive evidence that the pricking and burning sensation experienced in masticating materials of this kind is mostly of a mechanical origin.

H. W. WILEY, M.D., Washington, D. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DEATHS FROM INFECTIOUS DISEASES

To the Editor:—Please give the numbers of deaths during the last five years in the United States from phthisis, pneumonia, scarlet fever, measles, whooping cough and diphtheria.

J. M. MITCHELL, M.D., Pontiac, Ill.

ANSWER.—Figures are available only for the registration area of the United States, which, in 1916—the year for which the latest statistics are published—comprised twenty-six states and represented 71,621,632 people, or 70.2 per cent. of the total population of the United States. The figures in the following tabulation are from mortality statistics published by the Bureau of the Census of the U. S. Department of Commerce:

DEATHS IN REGISTRATION AREA OF UNITED STATES, 1911-1916.*

	1916	1915	1914	1913	1912
Tuberculosis:					
All forms	101,386	98,194	96,903	93,421	90,360
	(141.6)	(145.8)	(146.8)	(147.6)	(149.5)
Lungs	88,696	85,993	84,366	80,812	78,465
	(123.8)	(127.7)	(127.8)	(127.7)	(129.9)
Meningitis	5,709	5,445	5,410	5,467	5,098
	(8.0)	(8.1)	(8.2)	(8.6)	(8.4)
Other forms	7,024	6,756	7,127	7,142	6,797
	(9.8)	(10.0)	(10.8)	(11.3)	(11.2)
Pneumonia:					
All forms	98,334	89,326	83,804	83,778	79,917
	(137.3)	(132.7)	(127.0)	(132.4)	(132.3)
Bronchopneumonia	35,105	33,501	32,153	31,094	28,422
Lobar	54,699	44,153	33,911	32,615	30,003
"Pneumonia"	8,530	11,672	14,740	20,069	21,492
Scarlet fever	2,355	2,419	4,360	5,498	4,078
	(3.3)	(3.6)	(6.6)	(8.7)	(6.7)
Measles	7,947	3,649	4,461	8,108	4,240
	(11.1)	(5.4)	(6.8)	(12.8)	(7.0)
Whooping cough	7,284	5,421	6,816	6,332	5,619
	(10.2)	(8.1)	(10.3)	(10.0)	(9.3)
Diphtheria and croup	10,367	10,544	11,786	11,920	11,013
	(14.5)	(15.7)	(17.9)	(18.8)	(18.2)
All causes	1,001,921	909,155	886,959	880,848	838,251
	(1,398.9)	(1,350.2)	(1,360.9)	(1,407.4)	(1,387.2)

* Figures in parentheses = rate per 100,000 population (from "Mortality Statistics," Bureau of the Census, Department of Commerce Washington D. C.).

Communal Infections.—During last year Dr. D. C. Kirkhope, M.O.H., found it necessary to draw the attention of the Tottenham education committee to the increased prevalence of, what he designated, "communal" diseases since the outbreak of the war, and he ventures the opinion that they were largely due to soldiers returning from camps and from the front. He continued: Ringworm of scalp and body, impetigo, verminous conditions, scabies and such like unpleasantly preponderate among our minor ailment clinic cases, and it becomes increasingly important that teachers, attendance officers and nurses responsible for the scrutiny of children in schools, and the attendance of children at school, refer all children concerning whom they have the slightest doubt to the clinic for an expert opinion.—*The Medical Officer.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

KANSAS: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.

MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, Jan. 28-30. Sec., Dr. G. H. Jones, State House, Jefferson City.

NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Jan. 28-31, Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.

NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

MEDICAL SCHOOLS OF MEXICO AND CENTRAL AND SOUTH AMERICA

From the following medical schools of Central and South America replies to questionnaires have been received by the Council on Medical Education which furnish a fair idea of the character of these institutions. Statements in regard to them are as follows:

Argentina

FACULTY OF MEDICAL SCIENCES OF CORDOBA, Cordoba, Argentina.—Organized in 1878. Completion of the six-year course of the secondary school admits to the medical course. The latter covers seven years; physics, chemistry and biology being given in the first two years. The faculty consists of 40 professors, 10 of whom are said to devote considerable time to scientific research work. There are also 34 instructors, or a total of 74 teachers. The institution has access to 350 beds in a hospital adjoining the college building, in connection with which also there is an outpatient department. Attendance is required at 30 necropsies, and the seniors are said, on the average, to attend about 20 maternity cases. There is a medical library having over 5,000 volumes, and from 60 to 70 medical periodicals are regularly received. There is a nucleus for a medical museum, but this has not been developed. The students enrolled are: first year, 90; second year, 81; third year, 75; fourth year, 63, and fifth years, 49, a total of 358.

FACULTY OF MEDICAL SCIENCES OF THE UNIVERSITY OF BUENOS AIRES, Buenos Aires, Argentina.—Year of organization not given. Graduation from the six-year course in the secondary school admits to the medical course, which covers seven years. Premedical sciences are given in the first two years of the medical course. The faculty consists of 68 teachers, devoting on the average 3 hours per week to teaching besides the practical work. The usual laboratory courses of instruction are given. The college has access to 420 hospital beds and also to a dispensary said to have 15 consultation rooms and an average of about 500 patients daily. Students are required to witness postmortems in the hospital, there being altogether about 200 necropsies each year. Each student, also, must have attended at least 4 maternity cases. The college has a library of 48,000 volumes, including a full supply of medical periodicals. There is a medical museum containing nearly 6,000 anatomic and pathologic specimens. The students enrolled are: first year, 717; second year, 681; third year, 573; fourth year, 431; fifth year, 277; sixth year,

204; seventh year, 168, a total of 3,051. From the standpoint of student enrolment this is the largest medical school in the Western Hemisphere, as far as reports have been received.

Bolivia

FACULTY OF MEDICAL SCIENCES, LaPaz, Bolivia.—Founded in 1830 but not completed until 1835. Its first dean was Dr. Pasamanos. Completion of the secondary school course admits to a seven-year course in medicine. The premedical sciences, physics, chemistry and biology, are given in the first two years of the medical course. There are 19 professors who give, on the average, about 12 hours per week to research work. The medical school has access to 365 hospital beds. There is in connection with the hospital an emergency department, a municipal consultation office and an office of vaccination caring for about 55 patients per day on the average. Attendance on postmortems is required of medical students, as is true also of maternity cases, although figures are not given. The library consists of 399 volumes, but no medical periodicals are received. There is no medical museum. The students enrolled are: first year, 23; second year, 8; third year, 9; fourth year, 8; fifth year, 14; sixth year, 5; seventh year, 2, a total of 69. The institution also gives courses in pharmacy, chemistry and midwifery.

Brazil

FACULTY OF MEDICINE OF PORTO ALEGRE, Porto Alegre, Brazil.—Organized and equipped by the government of Brazil in 1898. Eleven years of elementary and secondary education precede admission to the medical school, the latter having a six-year course. Premedical sciences, physics, chemistry and biology, are given in the first year of the medical course. The school has 34 professors giving, on the average, one hour per day to scientific research work. The institution has laboratories in physics, chemistry, anatomy, legal medicine, physiology, histology, hygiene, pharmacology and microbiology. The school has access to about 200 hospital beds and to a dispensary having about 30 patients per day on the average. There are very few postmortems. No fixed number of maternity cases is required of the students. The library has about 3,200 volumes, but only 5 medical periodicals. There is a medical museum having altogether 163 prepared specimens. Students enrolled in 1917 were: first year, 29; second year, 50; third year, 29; fourth year, 15; fifth year, 27; sixth year, 29, a total of 179.

Colombia

UNIVERSITY OF CARTAGENA MEDICAL FACULTY, Cartagena, Colombia.—Founded in 1828. Completion of the six-year secondary school course giving the degree of Bachelor of Technic is required for admission to the six-year medical course. The premedical sciences, physics, chemistry, and biology are given in the first two years. The school has 19 professors who give 3 hours daily to scientific research work. The school has access to only 30 hospital beds and has a small dispensary of only 10 patients per day on the average. The students are said to assist at from 2 to 4 necropsies a year. No definite number of maternity cases is required. The library is said to consist of only 40 volumes and 4 medical periodicals. There is a small museum of natural history, but it contains no anatomic and pathologic specimens. The students enrolled in the medical school in 1917 are: first year, 9; second year, 3; third year, 5; fourth year, 7; fifth year, 5; sixth year, 10, a total of 39.

Mexico

SCHOOL OF MEDICINE OF DE NUEVO LEON, Monterey, Mexico. —Founded in 1859. Completion of the work in a superior secondary school admits to the five year medical course. The courses in physics, chemistry and biology are required to have been completed before admission to the medical course. There are 18 professors, each said to devote about two and a half hours per day, on the average, to teaching. The school has access to 127 hospital beds and to a dispensary having an average of about 14 patients per day. Attendance at necropsies is obligatory. Each student must have attended, as a minimum, 10 maternity cases. The medical library contains only about 350 volumes, and there are only 2 medical periodicals. There is a small medical museum containing about 35 anatomic, 11 pathologic and 45 other specimens. In 1917 the students enrolled were: first year, 9; second year, 4; third year, 3; fourth year, 4; fifth year, 2, a total of 22.

SCHOOL OF MEDICINE AND PHARMACY OF YUCATAN, Yucatan, Mexico.—Organized in 1833. Completion of the 12 grades of preliminary instruction, including work in the secondary (superior) school, is required for admission to the six-year medical course. Physics, chemistry and biology are required to have been completed in the superior school before admission to the medical course. The school has 25 full-time teachers giving, on the average, two hours daily to scientific research work. Laboratory courses are given in clinical chemistry, histology, anatomy, pathology, bacteriology, parasitology and therapeutics. The school has access to 600 hospital beds, but there is no outpatient department. It is said that there are about 300 necropsies per year, and attendance by the students is required. Students are required to attend at least 5 maternity cases. The library is said to consist of 3,000 volumes and 4 medical periodicals. A museum contains 1,727 anatomic and pathologic specimens. The students enrolled in 1917 are: first year, 17; second year, 16; third year, 18; fourth year, 9; fifth year, 6; sixth year, 4, a total of 70.

SCHOOL OF MEDICINE OF THE STATE OF MICHÖACAN DE OCAMPO, Morelia, Mexico.—Organized in 1828. Graduation from the secondary school admits to the five-year medical course. Physics and chemistry are required to have been completed in the first year of the medical course and biology in the second year. There are 12 professors who devote on the average 2 hours per day to scientific research work. Laboratory courses are given in physics, chemistry, biology, mineralogy, geology, anatomy, physiology, microbiology, histology, pharmacy and history of obstetric drugs. The medical school has access to 400 hospital beds and has a dispensary of 80 patients per day on the average. There are about 150 necropsies each year and about 350 maternity cases. The library consists of 2,000 volumes and 8 medical periodicals regularly received. A small museum containing 113 anatomic and pathologic specimens has been established. The numbers of students enrolled in 1917 are: first year, 10; second year, 8; third year, 8; fourth year, 12; fifth year, 7, a total of 45.

SCHOOL OF MEDICINE AND PHARMACY OF GUADALAJARA, Guadalajara, Mexico.—The University of Guadalajara, including its faculties of law, medicine and theology, was established in 1792 by royal order of the King of Spain and the Indies. The preliminary education consists of six years of elementary and five years of secondary education, which admits to the medical school. In 1916 the medical course was extended from five to six years. Physics, chemistry and natural sciences are required to have been studied in the secondary school, which has two large laboratories. The first year of medicine includes courses in medical physics and biologic chemistry. There are 32 professors who devote from 3 to 6 hours per week to teaching. Laboratory courses are given in physiology, bacteriology, normal and pathologic histology, organic chemistry, inorganic chemistry and general chemical analysis, electrotherapeutics and clinical diagnosis. Attached to the school of medicine is the Civil Hospital having 800 beds, of which 300 are devoted to teaching purposes. Connected with the hospital is a dispensary or polyclinic caring for about 50 patients per day on the average. Students are compelled to attend postmortems two or three times per week and there is an ample supply of material. Each student is required to attend at least 10 maternity cases during his sixth medical year. The library contains 1,000 volumes, with a large list of foreign medical periodicals. On account of the unsettled conditions in Mexico, the school has been able to receive regularly only about 15 or 20 of these periodicals. A medical museum is being developed, and about 40 or 50 anatomic specimens were collected during the last year. Students enrolled in 1917 are: first year, 37; second year, 35; third year, 31; fourth year, 21; fifth year, 21; sixth year, 5, a total of 150. The departments of pharmacy and midwifery have enrolled, respectively, 12 and 8 students.

NATIONAL SCHOOL OF MEDICINE OF MEXICO, Mexico City, Mexico.—Organized in 1833. Eleven years of preliminary education are required, including 5 years in the superior school, which corresponds with the high school course in the

United States. The medical course covers six years, which includes the courses in physics, chemistry and biology. The college has 50 professors. Laboratory courses are given in histology, pharmacy, pathologic anatomy, biologic chemistry, microbiology and physiology. The number of hospital beds available is not given. It is stated that no record is kept of the outpatients in the dispensary. Students taking the course in pathologic anatomy are required to attend two postmortems during the year. There is no fixed number of maternity cases. The library contains over 10,000 volumes with a large supply of medical periodicals, which have not been regularly received recently owing to war conditions. There is a medical museum containing nearly 2,000 anatomic and pathologic specimens. The students enrolled during the year of 1917 are: first year, 215; second year, 140; third year, 45; fourth year, 62; fifth year, 39; sixth year, 35, a total of 536.

San Salvador

MEDICAL SCHOOL OF SAN SALVADOR, San Salvador, Central America.—Organized in 1903. A certificate of preparatory professional education is required for admission to the six-year medical course. Physics, chemistry and biology are included as a part of the medical course. The school has 20 professors devoting from three to six hours per week to scientific research. Laboratory courses are given in histology, parasitology, bacteriology, biologic chemistry and toxicology. There are 120 hospital beds devoted to teaching purposes and a dispensary having about 40 patients per day on the average. Attendance at postmortems is not required, and no minimum number of maternity cases has been fixed. The library consists of approximately 1,500 volumes and only 3 medical periodicals. There is no medical museum. The numbers of students enrolled are: first year, 22; second year, 10; third year, 6; fourth year, 9; fifth year, 9, a total of 56 students in 1917.

Book Notices

THE DOCTOR IN WAR. By Woods Hutchinson, M.D. Cloth. Price, $2.50. Pp. 481, with illustrations. Boston: Houghton, Mifflin Company, 1918.

The author is well known as a writer for the public on medical topics, and most of the chapters in this book have previously appeared in magazines and syndicated newspaper articles. In his capacity as a journalist, Dr. Hutchinson visited the medical departments of the various forces in the great war, spending practically a year during 1917 in interviewing leaders and making observations. His book will give the reader a good picture of medical conditions with the fighting forces. The author seems to be hyperenthusiastic as to medical accomplishments during the war, and seems especially prone to accept too readily first estimates on new procedures or methods. There have already been many books on the medical aspects of the war written for lay readers. As a piece of descriptive work, the book by Dr. Hutchinson ranks with the best. As a basis for judgment of scientific accomplishments, it cannot be given equal rank.

BENJAMIN RUSH AND HIS SERVICES TO AMERICAN EDUCATION. By Harry G. Good, Ph.D., Professor of Education, Bluffton College. Cloth. Price, $1.60. Pp. 283. Bluffton, Ohio: American Educator Company, 1918.

Benjamin Rush was a many-sided physician; there have been many books concerning his life and work in addition to numerous papers and a voluminous correspondence which he himself prepared and which have been well preserved in various places. The book by Professor Good is concerned primarily with the work of Dr. Rush in education and social reform. The first few chapters discuss his early life and his work as a statesman and as a physician. The fourth and fifth chapters concern "Benjamin Rush and Dickinson College" and "The Educational Writings of Dr. Rush." An appendix contains a rather comprehensive bibliography. Professor Good has not overstated the accomplishments of Dr. Rush. The plain recital of facts indicates that a statement commonly made today concerning busy men applied very aptly to Benjamin Rush: The busiest men are those who seem to have the most time for doing things.

Medicolegal

Restrictions on the Physical Examination of Plaintiffs

(Perkins v. Monongahela Valley Traction Co. (W. Va.), 95 S. E. R. 797)

The Supreme Court of Appeals of West Virginia says that the right to have a physical examination of a plaintiff in an action to recover damages for personal injury, if such right exists, and on this the court expresses no opinion, can certainly only be reasonably exercised. The authorities on the question of the existence of the right are irreconcilably in conflict. An examination of the authorities leads to the conclusion that even in those jurisdictions in which the right to have such physical examination is recognized, it is granted or withheld by the court in the exercise of a sound judicial discretion. The things to be considered by the court in passing on a motion for a physical examination are the convenience of the plaintiff, the necessity for the physical examination, that is, the probability that it will produce evidence of value in the trial of the case, and also whether or not the plaintiff has declined to submit to such reasonable examination. In no case have the courts required the submission to a physical examination that would result in serious inconvenience to the plaintiff, or would involve a surgical operation, and ordinarily the plaintiff in such case is allowed the privilege of having such examination conducted at such time and place as he desires, in case he makes a reasonable selection thereof. The purpose of such physical examination in those jurisdictions in which it is allowed is not to secure evidence to defeat the plaintiff's case, but to expose the true situation; and should such examination result in opinions on the part of the examining physicians adverse to the defendant, he should not be allowed to have another examination with the hope of securing opinions from other experts favorable to him. When the plaintiff permits voluntarily such examination, the defendant should then select the experts he desires to make it, and should not be allowed to embarrass or inconvenience the plaintiff by unnecessary repetitions of such request. It is true that ordinarily such examinations are made in private; but this is because of the embarrassment that it might cause the plaintiff to submit to a public exposure of his person. If he prefers to have the examination made in the presence of the jury, the defendant cannot object, and certainly the testimony of the experts would be very much more enlightening under such circumstances than it would be when the object being examined was not physically presented to the jury along with the expert testimony. With reference to this particular case, the court holds that it is not an abuse of discretion to refuse to require the plaintiff in a suit to recover damages for personal injuries to submit to a physical examination, to be conducted by physicians selected by the defendant, when it appears that the plaintiff has submitted to one such examination, and on demand being made for a second one, expressed his willingness to submit thereto at the trial, if indeed the court has the power to require such examination in any case.

Bases for Convictions of Illegally Practicing Medicine

(State v. Wild (Mo.), 202 S. W. R. 613. State v. Evertz (Mo.), 202 S. W. R. 614. State v. Evertz (Mo.), 202 S. W. R. 616)

The St. Louis Court of Appeals, in these three cases, which are "not to be officially published," affirms convictions of the defendants of practicing medicine without a license.

In the first case, the court holds that the information was not fatally defective in failing to allege that the defendant was not a commissioned surgeon of the United States Army, Navy, Public Health, or Marine Hospital Service; neither in failing to allege that the defendant was not authorized to practice in Missouri under a "permit" of the state board of health, nor in failing to allege that the defendant had no license issued to him by virtue of the laws of another state or territory. It was argued that the information was fatally defective in that it did not allege that the defendant did treat or attempt to treat the sick; but, while it did not charge the

offense in the language of the statute, it was sufficient in charging that the defendant "did treat and attempt to treat one G. E. Wetzel for a disease known as rheumatism," thereby substantially charging that the defendant treated or attempted to treat "the sick or others afflicted with bodily or mental infirmities," in violation of the statute. The evidence disclosed that Wetzel was an employee of the health department of the city, presented himself at the defendant's office stating that he came because he had rheumatism and asking the defendant whether he could cure it; that the defendant said he could cure him "in different ways, . . . by way of massage, by electricity or water"; that the defendant undertook to treat him by rubbing him, and by the use of an electric battery, and by the application of water, for which the defendant charged and was paid $2. Wetzel testified that he had in fact no rheumatism; that he was perfectly well at the time, so far as he knew; and that he thus called on the defendant and submitted himself to the defendant for the purpose of making a case against him. The court regards it as clear that the conduct of Wetzel was not of such character as to relieve the defendant from the consequences of his acts done in violation of the statute, the evidence showing that the defendant had offices consisting of certain rooms, with appliances for treating patients, and that the prosecuting witness merely gave him the opportunity to demonstrate that he was treating, or attempting to treat, the sick or those afflicted. Nor was the evidence insufficient to sustain a conviction because the witness admitted that he had no rheumatism at the time in question, for the defendant attempted to treat the sick or afflicted.

In the second case, wherein it was said that it did not appear by the evidence that the state board of health was legally constituted, the court answers that the statute, of which the court takes judicial notice, provides for the creation of the board of health and defines its powers, and there was evidence in the case sufficient to show that under this law a state board of health was acting in the state. The treatment in this case consisted in the defendant's passing his hands over Wetzel's forehead and breathing on the knee in which Wetzel said he had rheumatism, and directing his attention to pictures on the wall, saying: "You get better; you get better; you are getting better," this being what the defendant called "mental suggestion." It was in evidence also that the defendant had advertised himself to give healing to the sick and afflicted by his method of "autosuggestion," as he called it, and held himself out as a doctor of "suggestive therapeutics," signing his name with the initials "S.D.," meaning Doctor of Suggestive Therapeutics.

In the third case it is held that an information following the language of the statute in charging the offense was sufficient. It is also held that the evidence showed a violation of the statute by showing that the defendant maintained an office, with a sign: "Evertz School of Suggestion. Oscar Evertz, S.D., Suggestionist. Treatment. Instruction"; that he circulated advertising matter; offered to treat a case for a certain sum, etc.

Valid Law and Revocation of License

(Lanterman v. Anderson et al. (Calif.), 172 Pac. R. 625)

The District Court of Appeal of California, Second District, affirms a judgment which affirmed the proceedings and determination of the board of medical examiners of the state under and by which the certificate and license authorizing petitioner Lanterman to practice medicine and surgery was revoked on the ground that he had been guilty of unprofessional conduct as defined by the state medical act, namely, the procuring or aiding or abetting or attempting or agreeing or offering to procure a criminal abortion. The court says it was argued that because the statute refers to a "criminal abortion," and that because in order to determine what a criminal abortion is one must look to the penal code, the charge would be insufficiently laid unless the acts defined in the penal code as constituting the crime of abortion were set forth. But the petitioner was not charged with a crime, nor was he subject, on the adverse determination made, to any penalty except the revocation of his license to practice medicine and surgery, and it must be said that the language of the statute is sufficiently explicit to advise a person charged thereunder of the particular kind of unprofessional conduct which it is proposed to prove against him, and that is all that need be said on the question. Nor does the court agree with the contention that the act under which the petitioner was prosecuted is unconstitutional on the ground that powers are conferred which belong strictly under the constitution to the judicial department. Acts of the nature here under consideration have been repeatedly sustained as a proper exercise of the legislative grant. The hearing in the lower court being on a writ of certiorari or review, that court did not err in refusing to take testimony on whether one member of the board had absented himself during the taking of evidence, because the record showed that a quorum of the board was present, and the writ of certiorari may not be used to add to or modify a record with respect to any jurisdictional fact determined therein. It was contended that there was no legal or sufficient evidence authorizing the medical board to make the order complained of. The force of this objection rested chiefly on the assertion that all the material testimony furnished against the petitioner was that given by his accomplices. But, the action not being criminal in its nature, the statutory mandate that a person may not be convicted on the uncorroborated testimony of an accomplice had no application. This court feels satisfied that any witness whose testimony as to competent facts was convincing to the board engaged in the hearing of the charge would be legally sufficient.

Eccentricities and Business Capacity of an Epileptic

(Furlong et al. v. Tilley et al. (Utah), 172 Pac. R. 676)

The Supreme Court of Utah affirms a judgment upholding the validity of a deed to land executed to his sons some four years before his death by a man who was subject to epileptic fits, which occurred generally about once a month, sometimes twice a month in later years, during which fits and for a short time after which it was admitted he was incapable of transacting business. The court says that it believes it is a matter of common knowledge, of which the court will take judicial notice, that when a person is so afflicted to the extent appearing in the record in this case, he is not necessarily disqualified from transacting ordinary business during the intervals between the attacks. This, perhaps more than anything else, accounted for the apparent conflict in the opinions of the various witnesses. Those who happened to see the grantor in one of these attacks or soon after would notice something abnormal in his demeanor or conversation, while those who saw him only in the intervals would notice nothing unusual. It did not appear from the evidence that the eccentricities enumerated, introduced to show the grantor's incompetence, reflected his mental condition at all times. They appeared to be more in the nature of isolated occurrences of mental aberration. As to the incidents themselves, while many of them were exceedingly peculiar, they were not by any means conclusive. His going to town in a buggy and returning without it, unexplained, certainly indicated absence of mind. His trying to put on baby shoes, perhaps in the presence of his little grandchildren, might be only for their amusement, or it might indicate mental aberration at the time. His sitting on the curb and putting his feet in the ditch to cool them off was not unnatural or abnormal; it might not have been according to ethics under the circumstances. His wandering around at times through the town might or might not indicate abnormality. His saying to a Democrat in argument that "God would take care of the Republican party" may have suggested to the Democrat the rankest kind of imbecility; but this court as a whole cannot accede to that view. His failure on some occasions to remember names or persons with whom he was familiar is, perhaps, a common failing of many persons as they advance in years. This court cannot say that such evidence is even persuasive that such persons are incompetent to transact ordinary business. On the other hand, all the evidence in the record relating to the transaction itself indicated that at the time the deed was executed the grantor was in a normal state of mind.

Society Proceedings

COMING MEETINGS

Southern Minnesota Medical Association, Mankato, Jan. 20-21.

AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Sixth Annual Meeting, held in Chicago, Dec. 8-11, 1918

(*Concluded from page 2177*)

Program of the United States Public Health Service

SURG.-GEN. RUPERT BLUE, U. S. Public Health Service, Washington, D. C.: I would point out the need of special vigilance on the part of health authorities in order to prevent the introduction and spread of dangerous epidemic diseases by our returning soldiers. When the history of the present war is written, not the least significant part will be that which records the achievements in the field of preventive medicine. Hundreds of thousands of lives have been saved as a result of the excellent work in sanitation and preventive medicine carried on by the British, French and American military forces.

What can be done among soldiers in the unfavorable environment of war can and should be done among the civilian population in the more favorable environment of peace, and this can be accomplished by intensive health work carried on by the U. S. Public Health Service in cooperation with state and local authorities. The Public Health Service contemplates constituting itself a national center and clearing house for information, advice and educational assistance on all matters relating to public health and hygiene.

The National Welfare

COL. VICTOR C. VAUGHAN, Washington, D. C.: The government should assume control of certain functions of the educational system of the country. The youth of the country on reaching a certain age, to be determined after mature deliberation, should be drafted into the service. The only exemptions from this service should be the mentally incompetent. Those suffering with physical defects should be classified, their defects repaired so far as possible, and the training adapted to their individual needs. The period of training should cover two years, continuous or broken into terms. This training should be disciplinary, and to this extent military; but the primary and principal purpose should be the preparation of men, not for the fighting line, but for good citizenship. This service will be best administered under the War Department. The training should include the physical, mental and the moral man.

Physical development and the practice of personal and community hygiene should be one of the fundamentals. Instruction in the prevention and eradication of infectious diseases should be given by practical demonstration as well as by textbooks and lectures. Personal hygiene must be practiced in daily life. It is largely a matter of habit.

The English language must be taught, and its correct use demanded of all at all times. The history of our nation, its relation to other nations in time of peace and in time of war, its material resources, and its ideals, should hold an important position in the curriculum. The obligations and duties of citizenship should be impressed on all. To those lacking training in mathematics, physics, chemistry and biology proper instruction should be given.

Every individual should be given a substantial start in some industrial trade or profession. He should know how to take care of his own body, make a decent living, be a clean and intelligent citizen, and be ready at all times and under all conditions to render effective service to his country. These training schools should be without expense to the individual. He should be housed, clothed, fed and instructed by the government, and his family should be moderately compensated for his time. In fact, he should have the status of an enlisted man in the Army.

When he completes the courses at the training school he should pass into a reserve corps and should carry a qualification card showing his grades in physical, mental and moral fitness. In the reserve corps he should be examined at intervals of two years until he reaches 45 years of age. At these examinations his qualification card should be reviewed.

In addition to the service provided for above, the government should improve the efficiency and extend the functions of its health service. The registered area should be extended so as to embrace the whole country. Morbidity statistics should be collected on uniform cards. The hygienic laboratory of the Public Health Service should be developed, and opportunity should be given for the multiplication of research investigations. Both preventive and curative medicine should be placed at the service of all citizens socialized. Every community should have a health commissioner and such personnel as may be necessary, with hospital and laboratory adjuncts.

Venereal Disease Control

DR. JOHN DILL ROBERTSON, Commissioner of Health, Chicago: Chicago secured an ordinance requiring the reporting of venereal diseases, June 29, 1917, the ordinance being practically in the form of the Australian law. It requires that the physician must report all cases of gonorrhea, syphilis and chancroid; the physician must give the patient an educational circular; in case the patient changes physicians, report must be made to the previous physician, and failure to continue treatment must be reported to the health department in ten days. In the first ten months of 1918, 6,258 cases of venereal disease were reported to the department. Known prostitutes are arrested by the police and brought to the Iroquois Memorial Hospital for the purpose of securing specimens for examination. When brought into court the women obviously guilty of crime are sentenced to the house of correction; others found infected are turned over to the health department and sent to the Lawndale Hospital. Of 480 males admitted to the house of correction in November, 1918, 6.25 per cent. were suffering with venereal diseases; and of the females, 11.6 per cent. I think it safe to say that not more than 1.5 per cent. of the population of Chicago is suffering with infectious venereal diseases. A municipal venereal disease clinic is essential for the enforcement of a venereal disease ordinance. At the Chicago clinic 630 men and ninety-one women were treated from Jan. 1 to Nov. 1, 1918.

A municipal venereal disease hospital is another essential. During the first ten months of 1918, Chicago treated 325 women between the ages of 15 and 53 in such a hospital. These women were kept occupied at such work as they were capable of doing. Statistics were obtained as to mental condition, educational status and occupations claimed by them. Morphin users were given treatment. Thirty-nine per cent. of these women had hooded clitoris, which suggests a possible predisposing cause for delinquency. Laboratory findings on specimens from patients showed 159 with syphilis positive; 127 with gonorrhea positive; 12 with mixed infection, and 27 nonvenereal.

Quack advertisements to the number of 1,500 were removed in Chicago, and 3,500 educational posters substituted. Druggists were educated against counter prescribing. With the absolute and full cooperation of the physician and the druggist, venereal disease can be controlled as effectively as tuberculosis.

Lipovaccines

COL. EUGENE R. WHITMORE, Washington, D. C.: In the U. S. Army, a number of lipovaccines have been prepared. The triple lipovaccine is now the official vaccine. A pneumococcus lipovaccine is also being used. Meningococcus, dysentery, cholera, plague and streptococcus lipovaccines have been prepared and tried out. The lipovaccines have the advantages that the entire amount of bacterial material can be given at one dose, without severe general reaction; and the immunity response is at least as good as when the bacterial material is given in divided doses suspended in saline solution. The lipovaccines keep for at least eight months. These advantages are of importance in public health work. The lipovaccines are probably not adapted to use in therapeutics. It is necessary to guard against attempting to adapt the advantages of the lipovaccines to the preparation of shotgun vaccines.

Industrial Disease Administration at the Present Time

DR. EMERY R. HAYHURST, Columbus, Ohio: Several important problems are at hand in adjusting health administration to cover industrial diseases and hygiene. There are: (1) keeping the workers able to work; (2) providing for increasing numbers of women, older people and youths; (3) maintaining all sanitary regulations; (4) watching especially against fatigue; (5) not only maintaining average vitality but raising the average vitality; (6) counteracting the indifference promoted by personal prosperity, number of available jobs, etc., and (7) continuing the spread of fundamental information calculated to save human waste—so-called hygiology. One establishment in Ohio, employing over 5,000 women, increased its output 10 per cent. almost over night by giving heed to advice from the state department of health on temperature and humidity control in the workrooms, and at the same time cut down, remarkably, absences, quittings and a peculiar form of illness that was spreading through the plant.

Shortage of hygienists and sanitarians to meet the demands is acutely felt, and it is necessary for certain properly equipped schools or the U. S. Public Health Service to select and instruct by short courses a large number of engineers, sanitarians and physicians in the principles of industrial hygiene and diseases.

Modern Advertising and the Nostrum Evil

DR. ARTHUR J. CRAMP, Chicago: The evils connected with the sale of medicinal preparations of the home remedy type—the so-called "patent medicines"—are due to proprietorship and to the advertising methods that such proprietorship engenders. The perpetual proprietary monopoly which the "patent medicine" seller obtains by means of our trade-mark laws makes extensive advertising profitable and, together with secrecy of composition, has led to the gross abuses that have made the "patent medicine" business a menace to the public health. Modern advertising differs from its earlier prototype in that whereas the latter chiefly, if not exclusively, notified the public simply where and how its demands might be supplied; the former is based largely on the principle of creating demands for the products advertised. No man has any moral right so to advertise as to make well persons think they are sick and sick persons think they are very sick. Such advertising is an offense against the public health. Modern medical advertising by the skilful use of testimonials, and by plausible claims, direct or inferential, leads the public to magnify every trivial ailment, deceives those who are well into the belief that they are sick, and impresses the idea that the products are panaceas for whatever ailments the public is suffering from or can be deceived into believing itself to be suffering from. Medicaments of the home remedy type for the self-treatment of simple ailments should contain no dangerous or habit-forming drugs; should not be recommended for diseases that are obviously too serious to be self-treated; should be nonsecret, and should not be sold under false claims or so as to make the public magnify trivial ills and dose itself unnecessarily. There are plenty of official products (U. S. P. and N. F.) to meet every legitimate requirement for medicaments for self-treatment. These products are nonsecret; their purity is established and protected by law. As any competent pharmaceutic house can make them, the elements of secrecy and proprietorship are removed and the incentive to fraudulent or misleading advertising claims is abolished.

Tuberculosis Control Following War Conditions

DR. D. B. ARMSTRONG, Framingham, Mass.: The war will undoubtedly increase the magnitude of the tuberculosis problem in the United States, just as it has in foreign countries. In 1913, the death rate from pulmonary tuberculosis in England and Wales was 101 per hundred thousand people living. By 1916 this had increased to 118 per hundred thousand. In Birmingham alone, for instance, the 1913 rate of 119 per hundred thousand had increased in 1917 to 130 per hundred thousand. As a result of the special tuberculosis work being done under the auspices of the National Tuberculosis Association in Framingham, we have in this community excellent evidence to show that tuberculosis exists in our civil population to a greater extent than had hitherto been supposed. In Framingham, which is a typical industrial town with average health conditions, there were on Jan. 1, 1917, twenty-seven known cases of tuberculosis. After an extensive search for tuberculosis, the number of living known cases was increased to 181 in November, 1918. An intensive examination of about two thirds of the population of this town has shown that approximately 2 per cent. of the people have tuberculosis in either an active or an arrested form. This means that in the United States as a whole there are 2,000,000 cases of tuberculosis, and at least 1,000,000 people who have the disease in an active and possibly contagious form.

How are we to meet this national problem? In the first place, it means adequate appropriations for general health and antituberculosis work. Where we have been spending 15 cents or 25 cents per capita on health work, we must spend from $1 to $2 per capita if we are going to meet our obligations. As to tuberculosis in particular, it is important to find the early cases and to get them under adequate treatment. The public at large must be educated more intensively than hitherto regarding the principles of hygienic living.

Work of the Department of Health and Sanitation of the United States Shipping Board

LIEUT.-COL. PHILIP S. DOANE, M. C., U. S. Army, Director of Health and Sanitation, U. S. Shipping Board Emergency Fleet Corporation: This department is maintaining supervision over the health of about 430,000 employees scattered over 7,000 miles of coast line. Like all war emergency industries, the Shipping Board had to organize its various departments in such a manner as to meet its needs. The problem confronting us was to secure such conditions in shipyards and their environment as to maintain the workers in the healthy, vigorous condition so essential to the speedy construction of ships. Arrangements are made with local hospitals for the care of injured employees. Yards employing more than 10,000 men without the nearby hospital facilities have their own hospital, constructed according to plans and specifications outlined by the Army, with suitable modifications.

The surgical care of injuries is given special attention. All employees are urged to report for dressing with every injury, no matter how slight; consequently the monthly reports show a percentage of injuries often running as high as 50 per cent. of the men employed. The board is cooperating with the Surgeon-Generals of the Army, Navy, and Public Health Service, and the Committee on National defense, in carrying on a prophylactic venereal campaign both in the shipyards and in the cities and towns surrounding them. This campaign is becoming so general in character that state laws are necessarily being enacted to favor this work.

The eradication of mosquitoes is an important measure at shipyards. This department cooperates with local and state health authorities to obtain suitable drainage of the yard and its environment, filling in low land, oiling stagnant water, etc. In mosquito countries, the screening of building and sleeping quarters is urged.

Owing to the efficient action of the medical and sanitary experts, not a single shipyard has been compelled to shut down during the influenza epidemic. It was strange that the Pacific Coast yards should have been affected before those of the Great Lakes region.

Team Work in Public Health

DR. GEORGE E. VINCENT, President of the Rockefeller Foundation, New York: The work of the fifty-seven health societies of the United States is to a large degree unsuccessful because too much time is spent in the collection of funds and preaching about accomplishments, thereby leaving no time for scientific investigation. It is certain that so long as the voluntary agencies of public health of this country persist in the present policy of isolation and rivalry, seeing their specialties out of focus, unconsciously misleading the public, hampering the development of unbiased research, and preventing the consistent and careful education of the people,

they will be in no position to bring to bear on the federal government pressure for the creation of a federal department of health with a secretary in the President's cabinet. Three things are necessary to correct these evils: (1) the establishment of a definite body of scientific knowledge; (2) effective demonstration of the application of such knowledge, and (3) systematic, unified, consistent education of the public in the scientific basis of health and the principles of procedure.

Future State Policy in Relation to Health and Welfare

MR. FREDERICK L. HOFFMAN, Newark, N. J.: A beginning has been made in this country through the Children's Bureau at Washington in initiating a plan for the systematic measurement of children of preschool age, subsequently, no doubt, to be followed by the introduction of systematic measurements of children during the teaching period from the primary grade to the university. The second prerequisite for a rational and effective public health administration is the accurate and complete registration of all serious illnesses, whether in private practice or in institutions under medical supervision and control. The third fundamental principle of modern health administration is a state medical service, including all the medical services now rendered in connection with public institutions, poor-law establishments, schools, state and municipal dispensaries, clinics of all kinds, etc.

Vaccination as a War Measure

DR. MAURICE OSTHEIMER, Philadelphia: Smallpox has increased during the war throughout the United States. In many instances the spread of the disease was definitely to be attributed to unvaccinated workers in the munition plants. In some instances a migrating unvaccinated worker developed smallpox and gave the disease to one or more workers in one, two or even three plants before he was caught and isolated. In Philadelphia alone up to Oct. 18, 1918, thirty-three cases of smallpox had been reported, while there had only been twelve during the year 1917 and only five in 1916. It might prove practicable for the U. S. Public Health Service to request of the U. S. Railway Administration that tickets for places outside of the city be sold only to a purchaser who presents certificates of successful vaccination for each member of his party.

Clinic for Vocational Diseases

DR. LOUIS I. HARRIS, New York: Very few municipalities have done anything in industrial hygiene. This traditional idea that to do anything we must have elaborate outfit and budget has retarded progress in many communities of an industrial character. In New York City less than 200 cases per annum of occupational diseases were reported by all the 8,000 physicians, all the hospitals and dispensaries and all the industrial corporation physicians, an infinitesimal fraction of the number of cases that will subsequently be registered as tuberculosis cases, as cases of all kinds of occupational poisoning, and the things in which the occupational factor will never be recognized. The vocational clinic in New York gives to the poor men in the community, whom the health authorities are obligated to protect, protective medical care.

Closing Schools as a Means of Controlling Epidemic

MR. WILLARD S. SMALL, Chairman, Bureau of Education: Fifty cities in thirty-one states were asked to give an opinion on this subject. Replies were received from thirty-two cities in nineteen states. An analysis of these replies shows that closure of schools as a means of controlling epidemics of the six diseases specified is unnecessary, unscientific and unjustifiable. The proper method of control involves a sufficient inspectorial force of physicians and nurses to maintain close supervision of cases and contacts; enforcement of isolation and quarantine under elastic administrative regulations; the employment of clinical and laboratory tests and reliance on such data; close correlation of the school medical inspection with the health department on the one hand, and with the school forces on the other hand, and continuous education of the public.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

November, 1918, **1**, No. 11

1 Tuberculin in Diseases of Eye. J. E. Weeks.—p. 753.
2 Tuberculoma of Iris: Report of Case. T. A. Mulcahy and J. Ewing.—p. 757.
3 Tower Skull with Double Optic Nerve Atrophy. M. Goldenburg. —p. 760.
4 Inertia of Adjustment of Eye for Clear Seeing at Different Distances. C. E. Ferree and G. Rand.—p. 764.
5 Permanent Vascular Changes Following Injuries to Eye. E. Jackson.—p. 776.
6 Cases of Unrecognized Chronic Simple Glaucoma. E. J. Brown. —p. 780.
7 Paralytic Strabismus Cured by Simple Operative Procedure. J. S. Wyler.—p. 783.
8 Relation of Lues to Ocular Pathology. J. M. Blackwood.—p. 784.
9 Infantile Dacryocystitis. F. T. Clark.—p. 785.

American Journal of Public Health

November, 1918, **8**, No. 11

10 Fraternal Orders and American Public Health Association. L. K. Frankel.—p. 813.
11 Fashions as Affecting Public Health. J. Throckmorton.—p. 817.
12 Critical Study of Bacterial Count in Water and Sewage. M. F. Stein.—p. 820.
13 Nation's Need of Physical Education. W. S. Small.—p. 830.
14 Sewage Disposal Problem in Chicago. C. D. Hill.—p. 833.
15 Dissolved Oxygen as an Index of Pollution of New York Harbor. K. Allen.—p. 838.
16 Vaccination as a War Measure. M. Ostheimer.—p. 843.
17 The 1890 Epidemic of Influenza in Chicago and Its Influence on Mortality, 1890 to 1893 Inclusive. W. A. Evans and M. O. Heckard.—p. 845.
18 Influenza Epidemic in Chicago. J. D. Robertson and G. Koehler. —p. 849.

Annals of Surgery, Philadelphia

November, 1918, **68**, No. 5

19 *Value and Limitations of Laboratory Studies of Acidosis in Surgery. G. W. Crile.—p. 457.
20 Hospitals of American Expeditionary Force. C. H. Peck.—p. 463.
21 *Quinin-Formaldehyd Solution in War Surgery. J. T. Pilcher. —p. 467.
22 History Analysis Applied to Surgical Diseases of Biliary Tract and Pancreas. A. O. Whipple.—p. 471.
23 Myositis Ossificans Progressiva: Digest of Literature. J. Rosenstirn.—p. 485. (To be continued.)
24 *Radiolucent Semilunar Shadow Occurring as a Constant Factor in Certain Cases of Severe Intermittent Headache. A. M. Miller and E. G. C. Williams.—p. 521.
25 Important Points Relating to Surgical Treatment of Prostatic Hypertrophy. A. J. Ochsner.—p. 522.
26 *Ambulance Airship. N. W. Sharpe.—p. 526.

19. **Acidosis in Surgery.**—In the problem of shock exhaustion, the success of such restorative measures as oxygen, the intravenous injection of sodium bicarbonate with glucose and, above all, sleep—deep, untroubled sleep—Crile says, lends support to the laboratory conception that acidosis—intracellular acidosis—is the fundamental condition present in exhaustion from any cause.

21. **Quinin-Formaldehyd Solution in War Surgery.**—The claims made by Pilcher for this solution are that it is simple of preparation, stable, can be concentrated for transportation, the strength can easily be increased or diminished, and it can be used in an early stage of wound treatment, at the field or evacuation hospital. The solution is thus prepared: quinin sulphate, 1 gm.; hydrochloric acid, 0.50 c.c.; glacial acetic acid (99 per cent.), 5 c.c.; sodium chlorid, 17.50 gm.; aqueous solution of liquor formaldehydi, 1 c.c.; thymol, 0.25 gm.; alcohol (90 per cent.), 15 c.c.; water, q. s. ad 1 liter. (1) Dissolve the quinin in the hydrochloric and acetic acids. (2) Dissolve the sodium chlorid in the water. (3) Dissolve the thymol in the alcohol. Add No. 1 and No. 2, then the liquor formaldehydi (40 per cent), and finally the thymol solution. The solution is best applied as directed for the use of the Carrel-Dakin solution, or may be injected through the Carrel tubes every two hours, or more frequently, if necessary, to keep the wound bathed with it.

To test its efficacy it was employed in 100 cases of severely infected wounds at the American Red Cross Military Hospital No. 5, mostly compound comminuted fractures, which had been treated for from ten days to two weeks or longer with Dakin's solution, and in which the bacterial flora showed no signs of diminution in the great majority of instances. There was a marked drop in temperature and pulse in many cases on changing from Dakin's to quinin-formaldehyd solution, without any operative procedure. Some wounds showing a count of 10 to 15 bacteria per field apparently have been rendered free from germs within three days. That is to say, none have been found in the repeated examination of fifteen fields. Thirty consecutive cases treated within thirty-six to forty-eight hours after receipt of injury, on whom preoperative smears were made and the presence of infection established, were rendered sterile within forty-eight hours and have continued to show absence of any bacteria on repeated counts subsequently, with one exception.

24. **Radiolucent Semilunar Shadow Occurring in Cases of Intermittent Headache.**—As a cause for the appearance of this semilunar shadow, immediately below the cranial vault, as a constant factor in these cases, Miller and Williams offer the hypothesis that it is due to hydrostatic changes in the cerebrospinal cavity. The cases which have shown this shadow give parallel histories. All the patients entered the hospital for the relief of severe intermittent headaches, which do not respond to the usual methods of treatment. The four cases cited occurred in adults in middle life. Two of them were males, giving history of remote head injury, one of them nine years and the other twenty-seven years previous to entry to the hospital. Of the two females, neither had a history of injury. One was decidedly neurotic. All cases were free from gross anatomic disease or lesion. One male showed marked change in disposition, being considered by his family as dangerous on account of violent attacks of anger from trivial causes. This is the only suggestion of mental instability shown by any of the patients. Two deaths have occurred. One male, who was injured nine years previously, died from cerebral hemorrhage, and one female from a pulmonary lesion.

26. **Ambulance Airship.**—This ambulance was designed by Sharpe primarily for the welfare of the patient, his personal comfort, and his personal safety. No alteration of the streamline fuselage has been made, nor alteration of the fuselage that would involve a structural weakening; the requisite alterations are simple in design, inexpensive in material and labor, and well within the capability of the shop personnel of the flying field. The rear cockpit has been abolished, and a chamber developed within the fuselage for the carriage of a litter and a man, with a maximum clearance of 17 inches and a minimum of 14 inches. The usual turtle-back is unchanged, save that a stronger and more dependable locking device has been employed. Additional protection against the air (especially in case of pronounced shock) may be secured by clamping into place a translucent celluloid shield. The litter is essentially the service litter with but scant modification. Strong clamps, activating on the eccentric principle and attached to the longeron litter bed, engage in the litter longerons, which have been suitably metal-sheathed for their reception.

Boston Medical and Surgical Journal

Dec. 5, 1918, **179**, No. 23

27 *Blood Pressure in Insane Patients Aged Sixty and Over. E. T. Gibson and A. M. Kimberly.—p. 693.
28 Report of Hospital for Convalescents. W. H. Devine.—p. 696.
29 Speech-Reading for the War Deaf. C. J. Blake.—p. 697.

27. **Blood Pressure in Insane Patients.**—A careful blood pressure study was made by Gibson and Kimberly of 163 insane persons confined in an asylum. They found that diastolic pressures in both sexes vary little after 60. In men systolic pressures increase about 10 millimeters of mercury for each five years up to 75. Systolic pressures in women increase abruptly in the years from 65 to 69. In older women the pressure is less and does not vary with age. Both diastolic and systolic pressures are distinctly higher in women. About half of both men and women had evidence of cardiorenal disease. Blood pressures average the same in this group as in all the men and women. Blood pressures in men average the same in those with positive Wassermann reaction as in those with negative Wassermann reaction. The blood pressure is not affected significantly by the psychiatric diagnosis, except in senile dementia, in which the averages for both sexes are higher. One third of the women and one fifth of the men have systolic blood pressures over 180 mm. Evidence of heart and kidney disease was found in all but one of these men but in only two thirds of the women.

Journal of Bacteriology, Baltimore

September, 1918, **3**, No. 5

30 *Synthetic Medium for Direct Enumeration of Organisms of Colon-Aerogenes Group. S. H. Ayers and P. Rupp.—p. 433.
31 *Endo Medium for Isolation of B. Dysenteriae and a Double Sugar Medium for Differentiation of B. Dysenteriae (Shiga and Flexner). I. J. Kligler and J. Defandorfer.—p. 437.
32 Cross-Agglutination of B. Coli Communis and B. Dysenteriae Shiga. I. J. Kligler.—p. 441.
33 Evolution and Classification of Bacteria. R. S. Breed, H. J. Conn and J. C. Baker.—p. 445.
34 Classification and Nomenclature of Bacteria. The Subgroups and Genera of Thiobacteriales. R. E. Buchanan.—p. 461.
35 Proteolytic Activities of Soil Microorganisms, with Special Reference to Fungi. S. A. Waksman.—p. 475.
36 *Modification of Technic of Voges and Proskauer Reaction. G. C. Bunker, E. J. Tucker and H. W. Green.—p. 493.

30. **Medium for Enumeration of Colon-Aerogenes Group.**—Instead of depending on inhibition of certain species of bacteria, Ayers and Rupp believe that it is far better to simplify the culture medium to a point where the sources of nitrogen and carbon are in such a form as to allow only the growth of the organisms desired. With this view in mind, they have prepared a simple synthetic medium in which there is a single source of nitrogen, namely, sodium ammonium phosphate and a single source of carbon, namely, lactose. The composition of the medium is as follows: Solution 1: Sodium ammonium phosphate, 0.4 per cent.; acid potassium phosphate, 0.2 per cent.; lactose, 1 per cent.; dissolve in distilled water. Solution 2: Filtered solution of agar in distilled water, 3 per cent. Mix solutions 1 and 2 in equal proportions while hot and put up in definite amounts (100 c.c. or more) into flasks or bottles and then sterilize. A slight precipitate may appear on sterilization, but this does not interfere with the count and may not appear on the plate. At the time of plating, after the agar medium is melted and while at its highest temperature add for each 100 c.c. of medium 0.5 c.c. of a 1 per cent. alcoholic basic fuchsin solution and follow at once with 0.5 c.c. of a freshly prepared 5 per cent. sodium sulphite solution. Mix thoroughly and allow to cool, then pour into plates as usual. The red color is not entirely destroyed by the sulphite and at time of plating the medium is pink. The colonies appear on the plates as medium sized red colonies with a deep red ring around them. The color about the colony is quite characteristic, although some have only a deep red color in the colony itself. Bacteria which may also grow on the medium and which do not belong to the colon-aerogenes group usually give pink or uncolored colonies which can be distinguished readily from those of the gas formers.

31. **Endo Medium for Isolation of B. Dysenteriae.**—A mannite-glucose double sugar medium on the principle of Russell's double-sugar agar is described by Kligler and Defandorfer, to be employed for rapid differentiation of the Shiga and Flexner class of dysenteric bacilli.

36. **Technic of Voges and Proskauer Reaction.**—The authors claim that the use of 0.5 c.c. of a 45 per cent. solution of sodium hydroxid, Syracuse watch glasses, and 1 c.c. of the culture results in the development of a greater number of positive Voges and Proskauer reactions in a shorter interval of time than the method given in the latest (1917) edition of "Standard Methods of Water Analysis." An incubation period of two days at 30 C. is recommended in place of that of five days in order to obtain the maximum number of positive Voges and Proskauer reactions from glucose potassium phosphate broth. In order to avoid separate cultures for this test, 1 c.c. portions may be withdrawn from those incubated for the methyl red test.

Journal of Biological Chemistry, Baltimore

November, 1918, **36**, No. 2

37 *Feeding Experiments with Raw and Boiled Carrots. M. C. Denton and E. Kohman.—p. 249.
38 *Creatinuria. Exogenous Origin of Urinary Creatine. H. Steenbock and E. G. Gross.—p. 265.
39 *Synthetic Capacity of Mammary Gland. E. B. Hart, V. E. Nelson and W. Pitz.—p. 291.
40 Comparative Metabolism of Certain Aromatic Acids. C. P. Sherwin.—p. 309.
41 Determination of Tyrosine in Proteins. C. O. Johns and D. B. Jones.—p. 319.
42 Hydrolysis of Kafirin. D. B. Jones and C. O. Johns.—p. 323.
43 Quantitative Determination of Phosphorus by Nephelometric Method. E. B. Meigs.—p. 335.
44 Preparation of Gulonic Lactone. F. B. La Forge.—p. 347.
45 Determination of Carbon Dioxid in Carbonates. D. D. Van Slyke. —p. 351.
46 *Mineral Metabolism in Experimental Acidosis. K. Goto.—p. 355.
47 Folin's DirectNesslerization Method for Determination of Nitrogen. L. Langstroth.—p. 377.
48 Determination of Urobilin in Urine. S. Marcussen and S. Hansen. —p. 381.
49 Nutrition of Fish. S. Morgulis.—p. 391.
50 Animal Calorimetry. Cause of Specific Dynamic Action of Protein. H. V. Atkinson and G. Lusk.—p. 415.
51 Sulphur Requirement of Red Clover Plant. W. E. Tottingham. —p. 429.
52 *Experimental Scurvy. Influence of Meat and Various Salt on Development of Scurvy. W. Pitz.—p. 439.
53 Method for Identification of Certain Uramino-Acids in Presence of Amino-Acids and Urea. A. Rohde.—p. 467.
54 Source of Error in Use of Picric Acid in Colorimetric Estimations in Biologic Fluids. A. Rohde and M. Sweeney.—p. 475.
55 Adaptation of Cobaltic Nitrite. Method for Estimation of Potassium in Blood. S. W. Clausen.—p. 479.

37. **Feeding Experiments with Raw and Boiled Carrots.**—In the present food crisis, a knowledge of the dietetic properties of root vegetables is of importance, particularly so since the use of dehydrated vegetables promises to come into general vogue. With these considerations in mind, Denton and Kohman instituted feeding experiments with carrots, using albino rats. They found that carrots, when properly supplemented with starch, purified commercial casein, butter or lard, and salts, to such an extent that 50 per cent. of the caloric value of the diet is still derived from carrots, will produce normal growth and reproduction in albino rats. Carrots as an exclusive diet, except for the addition of calcium, phosphorus, sodium and chlorine, may support animals in apparently good health for as long as sixteen weeks. Although there is no growth, the animals on this diet may maintain and at times even increase their own body weight. Carrots contain a considerable amount of both the water-soluble and fat-soluble vitamins. Ordinary methods of cooking do not perceptibly injure the nutritive value of carrots, or certainly not when used as part of a mixed diet. However, a considerable portion of the caloric value of the food is lost when the water used in cooking is rejected.

38. **Creatinuria.**—Steenbock and Gross believe that creatin is an end-product in the catabolism of certain precursors in the protein molecule just as urea is of others. Creatin generally occurs in the urine in instances where there is an increased protein catabolism; namely, during fevers, in exophthalmic goiter, in tumor cachexia, in post partum resolution of the uterus, in hydrazine and phosphorus poisoning, and in diabetes mellitus. Creatin in the urine is reduced or prevented by just those agents which reduce protein catabolism. For instance, carbohydrates and alkaline salts both reduce protein catabolism and both reduce creatinuria; fats do not reduce protein catabolism and correspondingly do not reduce creatinuria. In regard to the cause for the difference in the behavior of men and women in the facility with which creatinuria is produced on ingestion of protein, the authors believe it possible that this may be related to the variations well known to obtain in the activity of the thyroid mechanism. In normal well nourished men, creatinuria has never been observed or experimentally produced. In women, however, creatinuria usually obtains. It is suggestive that periodic variations in thyroid activity occur with the menstrual period varying in degree with different women and that during pregnancy when the thyroid is also affected pronounced creatinuria has often been reported.

39. **Synthetic Capacity of Mammary Gland.**—The evidence presented in this paper makes it very probable that the mammary gland has not the capacity to synthesize the amino-acid, lysine. Further, the evidence submitted supports the view that as far as the proteins are concerned milk secretion, like growth, is ultimately dependent on the quality and quantity of amino-acids ingested with the food. The authors hold to the view that the amino-acid lysin is not dispensable for normal maintenance.

46. **Mineral Metabolism in Experimental Acidosis.**—The results of Goto's experiments indicate with a fair degree of decisiveness that next to the bicarbonates of the body fluids, the first major reserves of alkali drawn on in acid intoxication of rabbits are the alkali phosphates, particularly potassium phosphate, of the muscles, and the calcium carbonate of the bones. The bones do not lose calcium phosphate in appreciable amounts.

52. **Experimental Scurvy.**—The effect of meat and tricalcium phosphate on the development of scurvy was investigated by Pitz. He found that an improvement of the protein of the diet will protect guinea-pigs from scurvy for a number of weeks and will greatly prolong the life of the animals, even though the physical character of the diet has not been improved. But while laxatives and lactose will prevent the development of scurvy in guinea-pigs for twenty weeks, improvement in the protein of the diet, even when 10 per cent. of meat is added, will not protect them for more than thirteen weeks. When tricalcium phosphate was added with the meat the animals were protected for eighteen weeks. Sodium chlorid when added to the milk, rolled oats, meat, tricalcium phosphate ration, also effected some further protection, demonstrating that low chlorin is one among the many factors that may cause delay in the development of scurvy. This latter point is further emphasized by the remarkable protection afforded guinea-pigs against scurvy by the ingestion of calcium chlorid in the ration and shows that the calcium and chlorin ions are of greater importance in the development of this disease than is phosphorus. The physical character of the diet and the character of the flora of the digestive tract are clearly of prime importance in the production of this disease, but other factors, such as those which make the diet more nearly chemically complete, which stimulate appetite and increase the flow of digestive juices and increase the resistance of the animals, which decrease the permeability of the intestinal wall, and which aid in correcting a deranged chlorin metabolism, are of great importance and will protect the animals from scurvy for a considerable time. These experiments point to the little emphasized rôle of calcium salts in nutrition; namely, that of controlling the permeability of various animal tissues and thereby affording protection against invading agents.

Journal of Cutaneous Diseases, Chicago

December, 1918, **36**, No. 12

56 Pemphigus: A Clinical Study. H. Goldenberg.—p. 557.
57 Toxic Erythemas and Their Bullous Manifestations. D. Lieberthal. —p. 568.
58 Retention Cysts of Mucous Membrane of the Lip. R. L. Sutton. —p. 579.

Journal of Infectious Diseases, Chicago

December, 1918, **23**, No. 6

59 *Virulence of Tubercle Bacilli Isolated from Sputum. H. J. Corper.—p. 493.
60 *Specific Fats as Factors in Immune Processes. C. C. Warden. —p. 504.
61 *Coagulation of Blood and Anaphylactic Shock. H. A. Bulger. —p. 522.
62 Bartlett and O'Shansky Modification of Wassermann Reaction. E. H. Ruediger.—p. 533.
63 *Differentiation and Distribution of Paratyphoid-Enteritidis Group. E. O. Jordan and E. E. Irons.—p. 537.
64 Failure to Obtain Potent Serum from Horse Injected with Poliomyelitic Material. S. G. Dixon and J. B. Rucker, Jr.
65 Metabolism of Pathogenic Actinomycetes (Streptothrices). S. A. Waksman.—p. 547.
66 *Case of Rat-Bite Fever. R. Tunnicliff and K. M. Mayer.—p. 555.
67 *Hemolytic Streptococci in Milk. D. J. Davis.—p. 559.
68 *Streptococci of Actinomyces-like Granules of Tonsils. I. Pilot and D. J. Davis.—p. 562.
69 Chromogenic Bacillus from a Case of Roup. B. F. Kaupp.—p. 568.
70 *Immune Reactions with Diplococci Isolated from Measles and Rubella. R. Tunnicliff and M. W. Brown.—p. 572.
71 Plate Method for Isolating Anaerobes. G. F. Dick.—p. 578.

59. **Virulence of Tubercle Bacilli in Sputum.**—The tubercle bacilli isolated by Petroff's method from the sputum of ninety cases of pulmonary tuberculosis in man, of which eight were incipient, twenty moderately advanced and sixty-two far advanced, were found to be of the human variety in eighty-eight of these cases. Of these eighty-eight cultures examined for virulence to guinea-pig (by subcutaneous injection), eighty-six proved to be virulent in amounts of 0.000,001 mg., ten of these were not examined below this amount and sixty-six produced tuberculosis (beyond the local glands) in guinea-pigs within two months in 0.000,000,01 mg. amounts. One of the two low virulent tubercle bacilli only produced a slight tuberculosis in guinea-pigs in 0.001 mg. amounts within two months, while the other produced no tuberculosis beyond the local involvement even in 1 mg. amounts.

No relation was observed by Corper between the virulence of the human tubercle bacilli for the guinea-pigs and rabbits, and the rapidity of the disease in man. No appreciable difference, within the limits of error of the experiments, between the virulence of human tubercle bacilli tested by subcutaneous injection for young (4 months) and mature (1 year) male guinea-pigs was noted on section forty-two and sixty-two days after infection. Corper found that human tubercle bacilli isolated on Petroff's medium do not appreciably alter their virulence for a period of from one to three months as tested in guinea-pigs, provided no detrimental influences are introduced. A second seeding on Petroff's medium within this time produces bacilli of equal virulence to guinea-pigs to the primary. Treatment of human tubercle bacilli with 3 per cent. sodium hydroxid solution for one hour at 37 C. does not appreciably affect the virulence of the bacilli for guinea-pigs while 6 per cent., sodium hydroxid for one hour at 37 C. will destroy the virulence of some cultures. The test for virulence of human tubercle bacilli isolated from the sputum of the same patient at different intervals (one and three months) give concordant results in guinea-pigs.

60. **Specific Fats in Immune Processes.**—The antigens dealt with by Warden were the specific fat antigens of the red blood cells of the sheep, the gonococcus, *Spirochaeta pallida*, the typhoid bacillus, and the cholera vibrio. He found that the fat complexes characteristic of certain bacteria and other cells replace the cells themselves in the production of specific antibodies in the blood of rabbits injected with them. The specificity of the antibodies obtained by the injection of cells probably depends in part or wholly on the configuration of the fats constituting the bulk of the cell surfaces.

61. **Coagulation of Blood and Anaphylactic Shock.**—Bulger is of the opinion that the changes in the coagulability of the blood during anaphylactic shock are due to changes in that stage of the coagulation process at which thrombin is formed through the interaction of prothrombin, calcium, thromboplastin and antithrombin (?). These changes are probably due to variations in thromboplastin. Antithmorbin changes are not great. In some animals there may be an increase in antithrombin which would aid in retarding the coagulation of the blood. There is no increase in antithrombin in rabbits. There was a marked increase in the rate of fibrinolysis after anaphylactic and peptone shock.

63. **Paratyphoid-Enteritidis Bacilli in Human Intestine.**—This paper deals with examinations of the feces of typhoid patients and convalescents and of patients suffering from other diseases. Nothing was found by Jordan and Irons that supports the assumption of a common or widespread distribution of paratyphoid bacilli apart from their association with specific disease conditions. Paratyphoid-like organisms are isolated more frequently from the stools of active typhoid cases than from those of healthy persons who had had typhoid some years previously. The intestinal flora of the latter in fact does not differ appreciably from that of normal individuals not known to have had typhoid. In a number of active typhoid cases different varieties of paratyphoid-like bacilli were found in the stools of one and the same individual. This corresponds with the generally heterogeneous bacteriologic characters of such stools. It is evident that the bacterial flora of typhoid stools is more varied than that of normal stools; however, the authors see no reason for assuming without further investigation that this condition is peculiar to the intestinal tract of typhoid patients. The observations made by Jordan and Irons on the stools of persons suffering from other disorders, especially disorders of the alimentary tract, indicate that the proportion of bacterial abnormalities in such cases is probably not very different from that in typhoid cases.

66. **Rat-Bite Fever.**—The chief points of interest in this case of rat-bite fever are the presence of a streptothrix in the polymorphonuclear leukocytes during life; in blood cultures after death; in smears of bone marrow, and possibly in the ganglion cells near the suprarenals. The streptothrix isolated in this case is more closely related culturally and morphologically to *Streptothrix putorii* than to *Streptothrix muris-ratti*. Morphologically, it differs from *Streptothrix putorii* in being shorter, as a rule. It differs culturally in producing a grayish color rather than a grayish-yellow color on glucose-blood agar, in growing less abundantly on plain and glucose agar, and in fermenting glucose, raffinose, maltose and leontose.

67. **Hemolytic Streptococci in Milk.**—Ninety-two samples of milk, forty-six pasteurized and forty-six certified, were examined by Davis. Hemolytic streptococci of the lacticus type were found in 23 samples. They were far more common in nonpasteurized than in pasteurized milk. They are less virulent for rabbits than the hemolytic streptococci of human origin. Two strains were found with moderate pathogenic power for rabbits. Davis points out that while, in general, one may practically be sure that organisms of the lacticus type are not dangerous to man, still individual organisms or strains of human, milk or bovine origin suspected of being responsible for sore throats or other infections in man should be studied carefully and compared with a view to finding specific common characters.

68. **Streptococci of Granules in Tonsils.**—Two types of streptococci, *S. hemolyticus* and *S. viridans*, were isolated by Pilot and Davis from the actinomyces-like granules of the tonsils. The viridans type showed strong anaerobic properties. The hemolytic cocci did not. Otherwise, the streptococci in their cultural and morphologic characteristics and pathogenic properties resemble streptococci from various parts of the mouth and from the crypts of normal and diseased tonsils.

70. **Immune Reactions in Measles and Rubella.**—Complement fixation tests were made by Tunnicliff and Brown with measles and rubella serum using, as a rule, a suspension of the diplococci isolated from the blood of measles patients, but also a mixture of strains, as the measles antigen, and a mixture of strains isolated from the blood and throat of rubella patients for the rubella antigen. The results indicate that the serum of measles and rubella patients contain complement fixing bodies for their respective diplococci to a slight degree early in the disease at about the same time the increase in opsonins occurs. Rabbits injected with various strains of measles and rubella diplococci develop agglutinins and opsonins. Agglutinins are demonstrable in the blood of immune measles rabbits often in high dilutions, both with homologous and heterologous measles strains. Satisfactory agglutination experiments are not possible, as a rule, until after long isolation of the diplococcus on account of spontaneous agglutination. Agglutinins are present in the serum of immune rubella rabbits, but generally only for the homologous strains. Specific opsonins are demonstrable in the blood of immune measles and rubella rabbits in high dilutions, and furnish the easiest and most reliable immunological method so far found, to differentiate measles and rubella diplococci from each other and from other nonhemolytic diplococci and streptococci.

Journal of Laboratory and Clinical Medicine, St. Louis

November, 1918, **4**, No. 2

72 *Clinical Pathology of Mustard Gas (Dichlorethylsulphide) Poisoning. G. R. Herrmann.—p. 1.

73 Diagnosis per Exclusionem in Ordine. E. E. Southard.—p. 31.

74 *B. Influenza in Sinusitis and Meningitis. Report of Cases. G. R. Lacy.—p. 55.

75 Comparative Values of Some Local Anesthetics. H. C. Hamilton.—p. 60.

72. **Clinical Pathology of Mustard Gas Poisoning.**—The blood and urinary changes in thirty soldiers gassed with mustard gas were studied by Hermann. These cases were of a very interesting variety, from the most severe types, those which resulted fatally, to those showing only the slightest lesions, such as the most mild type of conjunctivitis. The mild cases of mustard gas burns of the skin show no changes in the blood or urine. Moderately severe and severe cases of mustard gas burns of the skin with some involvement of the upper respiratory tract after the first week showed definite changes in urine, blood urea and blood. The urinary changes consisted in a diminution of the urinary output, increased concentration and acidity, albuminuria, and diminished urea and chlorid output. In the sediment were found casts, renal epithelium, red blood cells and an increased number of leukocytes. Under forced fluids prompt improvement occurred. Coincident with these urinary changes the blood urea was high, but approached normal with the improvement in the urinary condition when fluids were forced. The blood showed a slight secondary anemia with a well-marked polymorphonuclear leukocytosis, a definite eosinophilia, and the appearance of myelocytes and young forms of leukocytes. The blood platelets were usually increased. No evidence of hemolysis was found. No leukopenia was noted at any time. The leukocytosis reached its height coincidently with the height of the secondary infection and fell with the improvement of the infection.

The temperature, pulse and respiration charts showed in the severe cases an initial period of shock. With the development of the necrosis and the secondary infection there was a corresponding febrile reaction. The bacteriologic examination of the infected skin lesions and furuncles showed constantly the presence of *Staphylococcus pyogenes-aureus.* In one bronchial cast obtained streptococci were present. Herrmann believes that the changes in the blood and urine may be interpreted as dependent on the secondary infection and, in part, possibly, to the absorption of toxic products from the necrotic skin, rather than to any direct toxic action of mustard gas.

74. **B. Influenzae in Sinusitis and Meningitis.**—Lacy advises to centrifuge the spinal fluid and culture it on various mediums, always using blood agar. In all cases of meningitis, either mild or severe, of indefinite etiology, the presence of "gram-negative bacilli in direct smears or on cultures from cerebrospinal fluid or from the accessory sinuses of the respiratory tract should be looked on as probable *B. influenzae.* Lacy reports two cases of frontal sinusitis and two cases influenzal meningitis. In these four cases there were found two types of *B. influenzae,* one which retains its original short bacillary form, indefinitely on artificial mediums and the other which readily develops filamentous forms after a few days on moist blood agar.

Laryngoscope, St. Louis

November, 1918, **28,** No. 11

76 Pathogenesis of Bronchial Asthma. W. Freudenthal.—p. 781.
77 Answer to Opponents of Radical Mastoid Operation. W. C. Bowers.—p. 790.
78 Modern Mastoid Operation. J. J. Kyle.—p. 805.
79 Points of Interest in Tests of Labyrinthine Function. C. Graef.—p. 811.
80 Therapy of Speech Defects. M. K. Scripture.—p. 817.
81 Nineteen Cases of Hyperplasia of Thymus Treated by Roentgen Rays. J. E. Benjamin and S. Lange.—p. 848.
82 An Elongated Styloid Process. S. Key.—p. 849.
83 Manikin for Practice and Demonstration of Special Instrumentation in Bronchoscopy and Esophagoscopy. T. Hubbard.—p. 851.

Medical Record, New York

Dec. 7, 1918, **94,** No. 23

84 Milder Forms of Manic-Depressive Psychoses and Manic-Depressive Constitution or Temperament. B. Onuf (Onufrowicz).—p. 969.
85 Prophylactic Vaccine Against So-Called Spanish Influenza. W. B. Stone.—p. 979.
86 Principles Underlying Surgical Treatment of Certain Infections About Sacrococcygeal Region. A. A. Landsman.—p. 980.
87 References to Hair by Rabelais. D. W. Montgomery.—p. 982.
88 Is There a Clinical Entity in Acute Vasomotor Paralysis? F. J. Farnell.—p. 984.
89 "Endless Chain" Treatment of Pneumonia. C. R. Humbert.—p. 985.

Dec. 14, 1918, **94,** No. 24

90 Nervous Disturbances of Civil Population in War Time. J. L. Corning.—p. 1015.
91 Diplococcus Meningitis in Adenoid Tissue of Nasopharynx. J. D. Aronson and S. A. Friedberg.—p. 1017.
92 *Splenectomy Following Radium Treatment for Myelocytic Leukemia. H. Z. Giffin.—p. 1020.
93 Anthropometry of Soldiers. A. MacDonald.—p. 1023.
94 Hypertrophy of Prostate. L. Sexton.—p. 1027.
95 Case of Purpura Rheumatica. L. J. Friedman.—p. 1029.

89. **"Endless-Chain" Blood Serum Treatment of Pneumonia.**—Acting on the belief that persons convalescing from pneumonia have antibodies in their blood stream, Humbert bleeds the patient as soon as his condition permits, and bleeds as much and as frequently as possible. After the blood is collected it is allowed to stand at room temperature until the serum separates. It is then pipetted off and centrifuged. The clear serum obtained is now heated to 56 C. for thirty minutes. Tricresol, 0.3 per cent., is used as a preservative. This treated serum is placed in stock. When another patient comes in with pneumonia the type of pneumococcus is determined immediately and treatment is begun. When convalescence sets in, the above precedure is repeated. It is a case of one gives serum to two, two gives serum to three, and so on, the procedure becoming endless. The compatibility test is always performed. No attention is paid to syphilis in donors. Any living spirochetes that may be present in the blood stream are killed by the heating process. Tuberculosis is eliminated by frequent sputum and blood examinations after the crisis. The serum is administered intravenously, only once daily, unless the condition of the patient its critical. As high a dose as 170 c.c. has been administered without any untoward effects. Reactions occurred in only two of the eleven cases treated in each being of a mild character. There was one death—Type III.

92. **Splenectomy Following Radium Treatment for Myelocytic Leukemia.**—Twenty patients with myelocytic leukemia have been splenectomized at the Mayo Clinic. Eighteen patients were treated by means of radium exposures over the spleen prior to splenectomy. In each case the spleen was very much reduced in size and the general condition of the patient was very much improved as the result of radium treatment. The operative mortality for the entire group of twenty cases was one death, or 5 per cent. Nine patients have since died, from two months to one year and three months after operation. The total duration of history in eight of the nine fatal cases was from nine months to three years and six months. In seven of the eight it was more than two years. Seven patients were operated on early in the disease, that is, less than six months from the time of denfinite onset; six of these are alive, five are in excellent, or very good condition. In two cases of a chronic type the patients are alive ten months and one year and seven months, respectively, after splenectomy. In general, patients with the largest spleens at the time of operation have died first. Giffin infers that this probably indicates that these patients represented a more severe type of the disease. On the other hand, those with the smallest spleens at the time of operation have, in general, lived the longest.

A period of improvement in the patient's general condition followed operation in all cases save three. This general improvement consisted of a feeling of well-being, which may have been psychic, of an improvement in the appetite and the anemia, of a gain in weight, and a definite loss of the icteroid tint when it was present. Marked gain in weight was, however, almost a constant postoperative feature. The period of improvement was not of definite duration. The blood, after splenectomy, showed no definite alteration, with the exception of an increase in the relative percentages of both small and large "lymphocytes." A review of these cases reveals no evidence that the duration of the disease is altered in any definite way by splenectomy.

Michigan State Medical Journal, Grand Rapids

December, 1918, **17,** No. 12

96 A Fortnight in a Field Hospital. A. M. Campbell.—p. 457.
97 Résumé of Five Years of Butterworth Orthopedic Clinic. W. E. Blodgett.—p. 461.
98 Some Unsettled Points in Surgery of Thyroid. M. Ballin.—p. 463.

99 Diseases of Aorta. Analysis of Fifty-Four Cases. W. J. Wilson, Jr.—p. 468.
100 Brachial and Femoral Pressures in Aortic Insufficiency. W. F. Koch.—p. 474. Cystitis. W. Lenehan.—p. 475.
101 Improper Treatment of Abortion. J. E. Davis.—p. 478.
102 Eye in Relation to General Diseases. E. Welsh.—p. 480.
103 Case of Hemorrhage in Middle Ear. D. E. Welsh.—p. 482.
104 Case of Anthrax. W. T. Dodge.—p. 482.

Minnesota Medicine, St. Paul

December, 1918, **1**, No. 12

105 *Problem of Humidity Indoors. E. P. Lyon.—p. 445.
106 Pathology and Treatment of Osteomyelitis. A. R. Colvin.—p. 452.
107 *Surgical Treatment of Progressive Ulnar Paralysis. Report of Cases. A. W. Adson.—p. 455.
108 Clinical Aspect of Prostatic Hypertrophy. E. Z. Wanous.—p. 460.
109 The War and Afterward P. Butler.—p. 463.

105. **Problem of Humidity Indoors.**—Lyon discusses this question of humidity indoors very thoroughly, especially as it affects the heating of homes. He says that if he were to put a heating system into a small house (in Minnesota) in the present state of development of hygiene and of heating engineering, he would choose a hot air furnace. He would have no outside air flue, but rather a cold return flue from every room to the base of the furnace. He would look to this system to secure circulation, which is now recognized as a very important hygienic factor. He would trust to leakage for renewal. He would have double windows, expecting even with these to have ample oxygen for an ordinary family. He would supply moisture by a sufficient number of broad shallow pans just above the fire pot, the water level in these being automatically maintained by connection with the city water system. He would have a good psychrometer and see to it that the relative humidity was kept about 40 per cent. He would have a good thermometer and keep the temperature at 65 F., or not above 68 F., and, he would expect good health and comfort dividends on the outlay of money and trouble required to get these conditions.

107. **Surgical Treatment of Progressive Ulnar Paralysis.**—Adson reports three cases of operation on the ulnar nerve. The nerve was very much enlarged and presented one or more so-called "neuromas" (intraneural fibrous tissue). The enlargement was of the fusiform type with definite thickening and hardening of the nerve itself and the neuromas were quite definitely circumscribed, though more or less diffuse throughout the nerve tissue. The ulnar groove between the internal condyle and olecranon was very shallow, owing, in two cases which were end results of old fractures, to an overgrowth of bone from the olecranon. In one instance a very definite bony spur of the ulna was present, without a history of fracture. It appears that the diffuse thickening of the nerve is due to frequent or constant but very slight trauma, such as bruising, or to the stretching of the nerve over some of the bony prominences. Small hemorrhages in the perineurium and in the endoneurium result, causing inflammatory reactions and the deposit of scar tissue. As the scar tissue tends to contract, many of the fibers become strangulated and eventually are destroyed, resulting in a gradual and progressive atrophy of the ulnar nerve. The condition is characterized by: (a) sensory changes—paresthesias and anesthesias; and (b) atrophy of the muscles involved, with gradual increase of motor paralysis. The surgical treatment consists of transference and fixation of the nerve to a position internal to the inner condyle, with longitudinal splitting of the epineurium and perineurium, or the resection of neuromas followed by anastomosis.

New York Medical Journal, New York

Dec. 14, 1918, **108**, No. 24

110 Military Training as a Factor in Public Health. C. O. Linder.—p. 1017.
111 Psychanalysis. F. J. Farnell.—p. 1018.
112 Syphilis and Matrimony. E. Pisko.—p. 1021.
113 Renal and Ureteral Infection with Gonococcus. L. Buerger.—p. 1022.
114 *Plaster Splint Treatment for Compound Fracture of Long Bones. J. A. Miller.—p. 1028.
115 Yale's Medical Activities at Changsha, China. A. P. Wilder.—p. 1030.
116 Cellulitis of Upper Lid Due to Foreign Body. Report of Case. A. Rovinsky.—p. 1032.

114. **Plaster Splint Treatment for Compound Fracture of Long Bones.**—The method of procedure advocated by Miller is as follows: The wound in the limb is dressed, and the entire limb is bandaged with one thickness of flannel bandage. The limb is measured for the desired length of the splint, then a piece of flannel or muslin bandage, the required length, is moistened and stretched out on a smooth long table. Starting at one end of the piece of flannel, plaster bandages soaked in warm water are laid down on this flannel (or muslin) from left to right, and back from right to left until the entire bandage has been used, and another is now used, if necessary, until the desired thickness is obtained. The plaster splint is now made; it is soft and pliable and is put on the limb lengthwise, the limb being held in position. The splint is bandaged onto the limb by means of gauze bandage, being molded at same time. The second splint is now made and applied in the same manner. The limb is held in position by means of sand bags until the splints are dry, usually about fifteen minutes. For forearm, three such bandages are usually sufficient for both splints, made long enough to immobilize elbow, and going down well onto hand. About seven are necessary for the splints in cases of fracture of the tibia and fibula, immobilizing both knee and ankle.

Northwest Medicine, Seattle

November, 1918, **17**, No. 11

117 Operative Treatment of Head Injuries. Report of Case. G. A. Cathey.—p. 315.
118 Gonorrhea in Women. J. L. Courtright.—p. 318.

Public Health Journal, Toronto

November, 1918, **9**, No. 11

119 Broader Aspects of Venereal Disease Problem. G. Bates.—p. 497.
120 Public Health Nurse. J. A. Baudouin.—p. 506.
121 Integer Vitae. Moral Aspect of Sex Problem. J. H. Muirhead.—p. 522.
122 Vice and Venereal Disease in Montreal. C. W. Cavers.—p. 529.

South Carolina Medical Association Journal, Greenville

November, 1918, **14**, No. 11

123 Milk Treatment in Care of Certain Chronic Diseases. S. Brunson.—p. 280.
124 Tuberculosis of Kidney. S. W. Schapira.—p. 285.

Southwestern Medicine, El Paso

November, 1918, **2**, No. 11

125 Roentgen Diagnosis of Pathologic Conditions in Lumbosacral Spine. W. W. Watkins.—p. 1.
126 Influenza Pandemic. E. B. Rogers.—p. 6.

Tennessee State Medical Association Journal, Nashville.

November, 1918, **11**, No. 7

127 Medical Aspect of Dental Caries in Childhood. R. H. Perry.—p. 257.
128 Primary Infection of Mastoid. Report of Cases. O. Dulaney.—p. 264.
129 Seven Thousand Industrial Injuries. D. Eve, Jr.—p. 269.

Texas State Journal of Medicine, Fort Worth

November, 1918, **14**, No. 7

130 Roentgenology of Colitis. L. L. Jones.—p. 244.
131 *Use of Fascial Transplants in Repairing Abdominal Hernia. A. O. Singleton.—p. 248.
132 Purpura; Its Treatment. M. L. Graves.—p. 250.
133 "Chorio-Epithelioma." Report of Cases. H. R. Dudgeon.—p. 253.

131. **Fascial Transplants in Repairing Hernia.**—Singleton has used transplants from the fascia lata in twelve cases of inguinal and one case of postoperative ventral hernia. These were extremely severe hernias, having very large rings, with a deficient amount of muscle and material for buttressing, and in which successful repair by any of the usual methods was doubtful. Four of these cases were recurrent hernias; two were complicated by the intestine sliding into the sac. The other cases presented either the direct type or the type of very large rings with a deficiency of the conjoined tendon. In the case of the very large postoperative ventral hernia the muscles could not be brought together and the fascia was successfully transplanted with a perfect result in the way of repairing the defect. Singleton is firmly of the opinion that this is an advantageous procedure and that it should be used

more frequently in certain cases of inguinal abdominal hernia and especially where it is found necessary to use foreign materials, such as the filigree wire to repair defects in the abdominal wall.

West Virginia Medical Journal, Huntington

November, 1918, **12**, No. 5

134 The Feeble-Minded With Special Reference to Juvenile Delinquency and Venereal Diseases. L. V. Guthrie.—p. 161.
135 Cesarean Section. G. W. Dobbin.—p. 166.
136 Intragastric Diagnosis. M. E. Rehfuss.—p. 171.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

Oct. 31, 1918, **12**, No. 2

1 *Epidemic of "Central Neuritis." H. H. Scott.—p. 109.
2 *Treatment of Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. F. Carter.—p 197, and 201.
3 *Id. Intravenous Injections of Neo-Arsphenamin in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. E. Cooper and H. F. Carter.—p. 211
4 *Id.: Quinotoxin for Two Consecutive Days in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. F. Carter.—p. 217.
5 *Quinine in Animal Tissues. Methods for Its Estimation. W. Ramsden, I. J. Lipkin and E. Whitley.—p. 223.

1. **Epidemic of "Central Neuritis."**—Scott analyzes a certain epidemic which broke out in the earlier months of 1917 among the laborers on a sugar estate in Jamaica. The onset in each case was sudden, the patients being attacked while at work and apparently in good health. The initial symptoms in all cases were conjunctivitis and stomatitis. Thereafter the patients could readily be divided into two categories: (1) with intestinal symptoms; (2) with nervous symptoms. The diet of those affected consisted exclusively, or almost exclusively, of sugar cane. The cane tops, which are cut or broken off, are covered with small hairs which are very irritating and may have set up the original conjunctivitis and stomatitis, and, when swallowed, the subsequent diarrhea. Fresh cases ceased with the cessation of the crop or almost immediately after.

No case with early diarrhea exhibited any affection of the nervous system. In nervous system cases the patients were always constipated until the final two or three days before death. Wassermann reactions with both the blood serum and the cerebrospinal fluid were invariably negative. Blood examinations revealed very little abnormality as regards total counts; differential leukocyte counts showed in all cases a marked relative lymphocytosis. Arneth index was very different from what is found normally in natives in the tropics.

The morbid anatomy of the nervous cases is typical of a "central neuritis." Scott sees no reason for thinking that the disease is pellagral in nature, or that it has any relation to pellagra. There is no reason for regarding it as beriberi. There are many contraindications to the condition being a new form of "deficiency disease." There is every reason for considering these cases as representing the acute form, or acute stage, of what has for many years been erroneously spoken of as "peripheral neuritis" in Jamaica. There is no positive evidence that the disease is microbial in origin, at least not a bacteriemia. All the signs and symptoms tend to its being a condition of "intoxication."

2. **Treatment of Malaria.**—Forty-nine men received quinin bihydrochlorid by intramuscular injection, 15 grains, simultaneously into each deltoid, with 10 grains, orally, or hydrochlorid thrice daily, totaling 60 grains daily, for 12 days. Of these 5 relapsed (10 per cent.). Relapses occurred in an average of 34 days (extremes sixteen to seventy-two days). This is known officially as the Aldershot C 17 treatment. Many of these men had been given daily doses of quinin (generally only 5 grains) after they had been discharged from the special malaria wards. The authors suggest that the low proportion of relapses may partly be due to this continued medication. A second series of thirty cases were subjected to the treatment. In twenty-six a parasitic relapse occurred in eight to fifty-six days, average eighteen days. In four cases there was no parasitic relapse within an observation period of sixty-seven to 100 days.

The authors believe that the season at which treatment for malaria is given influences the results obtained. The same treatment if carried out on different occasions may give quite dissimilar results. Broadly speaking, a very small percentage of cures is obtained in the winter and spring and a comparatively high percentage in the summer and autumn.

3. **Id.: Intravenous Injections of Neo-Arsphenamin.**—The authors found that single intravenous injections of neo-arsphenamin in doses of from 0.45 to 0.9 gm. control the febrile paroxysms and cause the disappearance of parasites from the cutaneous blood, as a rule within one day, in simple tertian malaria. Parasitic relapses occur, on an average, in twenty-one days. The curative effect of a single inpection of the drug in the doses used is practically nil.

4. **Quinotoxin Treatment of Malaria.**—A dose corresponding to 5 grains of quinotoxin hydrochlorid was given orally to five patients and 10 grains to four patients on each of two consecutive days. The drug had practically no action on the parasites or the fever, and so is inferior in its action to similar doses of quinin sulphate in simple tertian malaria.

5. **Estimating Quinin in Animal Tissues.**—Delicate methods are described by the authors for the estimation and detection of quinin in animal tissues and liquids. They found that quinin does not normally suffer change in putrifying urine or feces and that quinin introduced into an animal in large doses accumulates in most of the tissues at very much higher concentrations than in the blood. Of the quinin present in the blood, more than three fourths is in the serum (plasma?). Normal red corpuscles take up very little quinin. After intraperitoneal injections the suprarenal glands take up quinin at much higher concentration than any other tissue examined; the kidneys probably come next in the series. The healthy human kidney excretes quinin at much higher concentration than that at which it is present in the contemporaneous blood. During an attack of blackwater fever it appears to lose this power. The liver of rabbits, guinea-pigs and oxen rapidly attacks quinin postmortem and presumably during life. The properties of the active agent suggest that it is an enzyme. The product or products presumably represent normal metabolites of quinin in the living body.

Experiments directed to ascertain whether quinotoxin is a normal metabolite have shown that (*a*) it is attacked by liver extracts; (*b*) when ingested by mouth it produces alimentary disturbances, but some is absorbed and some at least is excreted unchanged in urine; (*c*) any antimalarial action which it may exert is so slight in comparison with that of quinin as to be negligible. A given dose of quinin gives rise in different men to very different amounts of quinin in the blood. The excretion period of quinin by the urine differs greatly in different men—ranging from forty-one hours (after a single dose by mouth) to seven and a half days (after the last of a succession of large doses). About 90 per cent. of the quinin injected intravenously disappears from the blood within one minute. There is a striking association between symptoms of quinin intoxication and high concentrations of quinin in the blood. When quinin is administered in a succession of large doses, an abnormally large proportion (from 90 to 93 per cent. of that ingested) is metabolized. Quinin may fail to effect a radical cure of malaria even when it has reached, and maintained for some time, a concentration in the blood so high as to be barely tolerable to the patient.

British Medical Journal, London

Nov. 23, 1918, **2**, No. 3021

6 Epidemiology of Influenza. M. Greenwood.—p. 563.
7 Influenza Epidemic at Bramshott in September-October, 1918. C. E. C. Cole.—p. 566.
8 Isolation and Cultivation of Anaerobic Bacteria. W. J. Wilson.—p. 568.
9 Femoral Artery in War Surgery. J. H. Nicoll.—p. 569.
10 *Curse of Immobilization. J. W. Dowden.—p. 570.
11 Variations in Activity of Ciliary Muscles. G. F. Alexander.—p. 571.
12 *Blood Pressure in Pulmonary Tuberculosis. R. J. Cyriax.—p. 572.

10. **Curse of Immobilization.**—Dowden is of the opinion that thousands of soldiers have been more or less disabled for life simply and solely on account of prolonged immobilization of injured limbs. He emphasizes the following four points: Nature is the most wonderful surgeon, especially when encouraged; septic wounds should be thoroughly drained; from the very beginning frequent passive and active movements should be carried out, steadily increasing the range; splints should never be used except when absolutely necessary, and then only for as short a time as possible, and should never interfere with passive and active movements. Massage time, a concentration in the blood so high as to be barely is a most excellent adjunct—the best—to active movement. Dowden lays little stress on the value of electricity or baths. When passive or active movements are begun early, pain is the danger signal that shows harm is being done, and the movements should be modified temporarily. When after prolonged immobilization adhesions have formed, however, pain has to be endured while the adhesions are being stretched or broken. Injuries to joints, even though septic, are not a bar to movement; the joints should be moved gently and encouraged, short of pain. For the last twelve years, Dowden has treated all fractures of the scapula, clavicle, humerus, and many of the forearm, without splints. Every movement of all joints and muscles is encouraged, first of all passively and as soon as possible actively, and this should be carried out frequently during the day. By the time the fracture has consolidated, all the movements of the joints are perfect, provided the damage has not been too great.

12. **Blood Pressure in Pulmonary Tuberculosis.**—Nineteen patients were examined by Cyriax as to blood pressure. The pressure in the two arms is by no means invariably the same. Five patients, all males, were confined to bed, except where otherwise stated. Tubercle bacilli have been found in all their sputa. In two cases differences of more than 5 mm. in the systolic pressures were not found; two observations were made on each patient at intervals of some days. Both had lesions in both lungs. In the remaining fourteen cases, not confined to bed, differences in the systolic pressure of more than 5 mm. were found in six. All six are cases of bilateral disease; tubercle bacilli have been found in the sputum. The differences amounted, in the male patients, to 7, 8 and 13 mm., respectively; in the female patients to 14, 8 and 10 mm. The systolic pressure in the arm appears to be lower, as a general rule, on the diseased side in a unilateral, on the most diseased or most active side in a bilateral lesion. Further investigations are in progress.

Dublin Journal of Medical Science

Oct. 1, 1918, **146**, No. 562

13 Amylolytic Properties of Urine and Significance of Variations in Health and Disease. W. R. Fearon.—p. 149.

Glasgow Medical Journal

November, 1918, **90**, No. 5

14 Treatment of Mal-Positions and Mal-Presentations. R. Jardine. —p. 257.
15 New Antisepsis in Surgery. J. MacIntyre.—p. 265.
16 Treatment of Acute Gonorrheal Epididymitis by Normal Horse Serum. R. A. Brown.—p. 280.

Lancet, London

Nov. 23, 1918, **2**, No. 21

17 Epidemic Catarrhs and Influenza. A. Newsholme.—p. 689.
18 Treatment of Influenza. T. Horder.—p. 694.
19 Incidence of Influenza (Pfeiffer) in Present Influenza Epidemic. J. McIntosh.—p. 695.
20 Pathology of Present Influenza Epidemic. P. Fildes, S. L. Baker, and W. R. Thompson.—p. 697.
21 *Cases of Malignant Disease of Upper Extremity. J. W. Geary Grant.—p. 700.
22 Ergoestesiograph: Apparatus for Graphical Representation of Muscular Aptitude of Candidates for Aviation. G. Galeotti. —p. 702.
23 Neurasthenic and Hysterical Cases in General Military Hospitals. R. H. Trotter.—p. 703.

21. **Malignant Disease of Upper Extremity.**—One of the cases cited by Grant, one in which several limited operations had been performed for an epithelioma of the hand, where ultimately the disease had extensively involved the axillary glands and lymphatic vessels, demonstrates the advantages which Berger's operation gives in sweeping away, without a difficult, tedious, and possibly incomplete dissection of the axilla, all possibly infected tissues. The second case was one of very extensive carcinomatous ulcer arising in the scar of a large burn involving the greater part of the skin of the right upper arm. The third case was one of a round-cell sarcoma of the scapula.

Medical Journal of Australia, Sydney

Nov. 2, 1918, **2**, No. 18

24 Hospital of the Future in Australia. R. Arthur.—p. 363.
25 Eyes and Ears of Soldiers in Egypt. L. J. C. Mitchell.—p. 365.
26 Two Cases of Small Upper Abdominal Tumor. Omentum Adherent to a Leaking Malignant Ulcer of Stomach. Torsion of Omentum, Adherent to Healthy Stomach. G. A. Syme.—p. 368.

Bulletin de l'Académie de Médecine, Paris

Nov. 5, 1918, **80**, No. 44

27 *Decortication of the Lung. E. Delorme.—p. 401.
28 *Pathologic Histology of Lethargic Encephalitis. G. Marinesco. —p. 411.
29 *Creosote in Treatment of Influenza. L. Weiller.—p. 418.

27. **Decortication of Lung.**—Delorme coined this term some years ago to express the releasing of the lung by peeling off the thick, stiff shell of false membranes crowding on it. It has proved particularly useful for the sequels of war wounds of the chest, especially when the decortication is done without further delay as soon as the lung is found incapable of returning to contact with the wall even after a course of respiratory exercises. In forty-nine cases of chronic empyema from a war wound, compiled from the experience of four British and French surgeons, there was no fatality for which the decortication could be incriminated, and the results were reported as highly gratifying. The decortication was an extremely mild and simple procedure when the empyema was "cold" and the general condition good. The decortication promises equal success with chronic pleurisy consecutive to influenza. Radioscopy readily shows the encapsulating shell.

28. **Lethargic Encephalitis.**—Marinesco reports the pathologic histologic findings in lethargic encephalitis as an inflammatory polioencephalitis, and suggests treatment by injecting convalescents' serum into the arachnoid cavity.

29. See Paris Letter, Dec 14, 1918, p. 2010.

Paris Médical

Oct. 12, 1918, **8**, No. 41

30 *Ocular Symptoms with Skull Wounds. F. Terrien.—p. 277.
31 Evaluation of Disability. J. Amar.—p. 278.
32 *Chronic Appendicitis Simulating Pulmonary Tuberculosis. Schouli. —p. 279.
33 Primary Autochthonous Malaria in France. G. Rosenthal.—p. 287.
34 *Hypochlorite Treatment of Vincent's Angina. Lagarde.—p. 289.
35 Paroxysmal Dyspnea with Incipient Miliary Tuberculosis. Uhry. —p. 291.

Nov. 16, 1918, **8**, No. 46. Influenza Number

36 *Influenza in 1918. P. Lereboullet.—p. 374.
37 *Azotemia in Influenza. A. Gilbert, E. Chabrol and J. Dumont —p. 378.
38 *Influenza in 1918. A. Netter.—p. 382; L. Rénon and R. Mignot. —p. 387; P. Ravaut and others.—p. 390.
39 Bacteriology of the Complications of Influenza. C. Richet, Jr., and A. Barbier.—p. 397.
40 *Treatment of Influenza. P. Lereboullet.—p. 399.
41 *Spirochetes in Influenza. Maclaud, Ronchèse and Lantenois. —p. 404.

30. **The Eye Symptoms with Skull Wounds.**—Terrien calls attention to the diagnostic importance of three symptoms which reveal hypertension and which may give the clue to the trouble in certain cases. The triad includes diplopia, restriction of the visual field, and choked disk. They subside after lumbar puncture as the hypertension is relieved, but if this is not done, irreparable damage may result. They explain the transient visual disturbances sometimes observed long after trephining, and they may reveal some brain lesion which had previously escaped detection. The symptoms seem to occur more frequently when the trephining opening was small, and they emphasize the necessity for caution in closing gaps in the skull with metal plates or cartilage.

32. **Appendicitis Simulating Pulmonary Tuberculosis.**—Schoull reports some cases in which râles, congestion in the apexes, and other symptoms of pulmonary tuberculosis fluctuated with exacerbations of chronic appendicitis, and disappeared completely after appendicectomy. The pathologic condition of the appendix was discovered accidentally at an ovarian operation in one case. In three of the cases, consultants did not accept his diagnosis until two of the apparently doomed patients regained their health after the appendicectomy. The third still rejects an operation. Schoull regards the pulmonary disturbances as a kind of metastatic congestion. Fever not over 38 C. keeping up for several months or years points to some other cause than pulmonary tuberculosis. It suggests appendicitis in adults and also in children if adenoiditis can be excluded. An "abdominal past" is also instructive.

34. **Hypochlorite Treatment of Ulceromembranous Angina.**—Lagarde states that neutral solution of chlorinated soda promptly cured twelve rebellious cases of Vincent's angina. After the mouth had been rinsed twice and the throat gargled several times the first day, the relief and improvement were pronounced, and no further spirilla or spindle-shaped bacilli could be discovered by the end of the second day. Dakin's solution in these cases exerts an unmistakable detersive, bactericidal and phagocytic action, so that the general health rapidly recuperates.

36. **Influenza.**—Lereboullet summarizes the present status of our knowledge on influenza and reiterates that the predisposition for other infections which influenza entails renders individual isolation exceptionally important.

37. **Azotemia in Influenza.**—The azotemia is of moderate degree but it is remarkably frequent, even in the young on a fluid diet.

38. **Influenza.**—Rénon and Mignot remark in this review of the present status of influenza that it has benefited much by the progress in hygiene realized since 1890. In five days recently, Bar had 19 develop influenza out of 79 inmates of the Tarnier maternity as also 14 of the 54 nurses and 4 of the infants. Then masks of three or four layers of gauze were worn by all and no further cases developed.

38. **Treatment of Influenza.**—Ravaut remarks that the symptoms on the part of the lungs are comparatively mild in the hypertoxic form of influenza, and a fixation abscess, tonics for the heart, and epinephrin seem to be indicated, with possibly hexamethylenamin. In one case antipneumococcus serum on four successive days seemed to be unmistakably responsible for the recovery. In other cases the benefit was less apparent. In the cases with edema of the lung, the interference with the local circulation calls for abundant and repeated bloodletting, and nothing must be given to increase the blood pressure, as long as the circulation in the lungs is blocked by the hemorrhagic-serous fluid. Perhaps one reason why the young and vigorous become asphyxiated quicker is because their heart keeps working so forcibly. Withdrawal of 500 or 700 gm. of blood may relieve at once, and the earlier this is done the better. Every minute's delay sees more blood oozing into the interstices of the lung tissue, and the circulation grows more and more difficult. The lungs were found gorged with coagulated blood in one case in which venesection had been deferred too long, and blood poured from the chest even after death. Many patients were undoubtedly saved by withdrawal of 500 gm. of blood on four successive days. Prompt venesection certainly warded off acute pulmonary edema in many cases. The main point is to apply it in time and without hesitation. When there was albuminuria, hexamethylenamin was found a useful adjuvant. Comparison of the blood of patients treated with and without venesection showed that the resulting anemia was no more intense than in the disease left to its own course. It is not dangerous, while it is the one chance of salvation when it is really needed. An intravenous injection of from 2 to 6 c.c. of a solution of 1 gm. iodin and 2 gm. potassium iodid in 100 gm. of water was given to many of the patients, and in his 1,000 injections of the fluid he never saw any signs of intolerance or injurious action in any way. The temperature often dropped afterward but rose again later to drop anew at the injection the next day. In three exceptionally severe cases the recovery seemed to be due to these injections alone. Some of the patients with pulmonary complications were given ten or twelve of these injections, and sometimes with highly appreciable results.

40. **Treatment of Influenza.**—Lereboullet reiterates that the first and main thing is individual isolation of the patient. Even in a mild case, he should stay in bed from the very first and eat little, only fluid food if there is much fever, but drink copiously of water and lightly alcoholized drinks. Meat, eggs and bread should not be given until two or three days after complete apyrexia. He warns against the abuse of purges at the start. In grave forms, with very low blood pressure, epinephrin may be useful. He gives 10 or 15 drops by the mouth two or three times. Given by subcutaneous injection, it is liable to cause severe disturbance in these cases. The heart may have to be reenforced with camphorated oil, or strychnin or both. Caffein is liable to bring on delirium. Wet packs of the chest, at 25 C., changed three or four times a day, have rendered good service. With a tendency to pulmonary edema, venesection must be abundant and repeated, otherwise wet cupping may suffice. His experience with serotherapy was limited, but the results were promising. Drugs that have a depressant action should be carefully avoided, including purgatives, but he advocates moderate doses of quinin, for its tonic action, 0.25 gm. for example, morning and evening.

41. **Is Influenza a Spirochetosis?**—In eight of twelve influenza cases examined, spirochetes were cultivated from the urine. The spirochete resembled that described in an official circular in 1917 as not inducing hemorrhagic jaundice and not pathogenic for guinea-pigs.

Presse Médicale, Paris

Nov. 14, 1918, **26**, No. 63

42 *Intravenous Injections After Hemorrhage. C. Richet, P. Brodin and F. Saint-Girons.—p. 581.
43 Technic for Direct Transfusion of Blood. Rhéaume.—p. 582.
44 *Electric Sterilization of Wounds. M. Parin.—p. 583.
45 *Injury of Peripheral or Sympathetic Nerves. E. Girou.—p. 594.

Nov. 21, 1918, **26**, No. 64

46 *Action of Organ Extracts and Autolysates. H. Roger.—p. 589.
47 Injury of Posterior Retroparotid Space. M. Villaret and M. Faure-Beaulieu.—p. 591.
48 Tuberculosis in Infants. R. Raimondi.—p. 593.

42. **Physiologic Solutions by the Vein After Hemorrhage.**—Animals more or less exsanguinated were given intravenous injections of different "artificial serums," in the research described. The most effectual was a solution of 7 per thousand sodium chlorid plus 5 per thousand lactose or glucose. With this it was possible to keep alive a dog that had been repeatedly bled until he had no more than 21 per cent. of his red corpuscles, and even continue the hemorrhages until he had only 5 or even 3 per cent. of his reds. Addition of gum acacia did not seem to offer any advantages over this salt-sugar serum. In large proportions, the gum acacia exerted a toxic action, as also sodium bicarbonate in any strength for these hemorrhage animals. The artificial serums were unable to ensure durable survival of the much exsanguinated animal, but direct transfusion of citrated blood permitted this. Complete restoration was the rule, showing that the nerve centers had not suffered from the loss of blood. The practical conclusion is that in case of severe hemorrhage, infusion of the salt-sugar solution will restore the mass of the circulating fluid and tide the exsanguinated along until he can be given a transfusion of blood. Only this latter will save in desperate cases.

44. **Sterilization of Wounds by Electro-Ionization.**—Parin relates that a single application of electric ionization with zinc sulphate promises to completely sterilize a war wound. His experience, he says, has been satisfactory in the fifteen cases in which he applied this method. In two of the cases streptococci were unusually numerous and the sterilization was not complete; possibly some other metal might be more destructive than zinc for the streptococcus. Friel is the only one that has applied this ionization method in sterilization, so far as Parin knows. Friel reported in 1917 his success with it in treatment of suppuration in the middle ear and the

maxillary and frontal sinuses, and since then has been using it for war wounds.

45. **Pain of Sympathetic Origin.**—Girou means by this, pain in the sympathetic nervous system in distinction to pain for which peripheral nerves are responsible. Lesions of the latter are manifested by paralysis, impotence and pains; lesions in the sympathetic system are manifested by contracture, circulatory and trophic disturbances and pains, but the pain is not so intense as in the other group. He has operated in many cases of causalgia and contracture and has found this distinction constant and pronounced. With causalgia of the Weir Mitchell type the median or popliteal nerve was always found injured, never the sympathetic nerve. The nerve seemed pathologic over a stretch of up to 10 cm. and the D. R. was generally complete. The lesion was too extensive for any direct intervention, and all that could be done was to arrest the conduction of the pain to the centers of consciousness. Sicard accomplishes this by blocking the nerve with intraneural injection of alcohol at 60 degrees. Girou obtained the same result by ligating the nerve with No. 2 catgut, drawn moderately tight. The ligature has to be made at a point on the median nerve above the sympathetic fibers reaching it from the sheath of the humeral. Ligation lower down would irritate these fibers and induce contracture. The ligature induces violent pain for an hour unless a little morphin is injected at the close of the operation. He has been treating causalgia in this way for three years. With flexion contracture of the hand, he invariably found the periarterial sympathetic sheath injured, showing the effect of some surgical ligature, or being bound down by cicatricial tissue. This hampers the circulation in addition to the direct injury of the sympathetic nerve fibers. These are the cases that benefit by cutting off the network of sympathetic fibers ensheathing the artery, that is, Leriche's method of periarterial sympathectomy. The two kinds of pain may be associated, causalgia and the sympathetic irritation pain, so that both the median nerve (the one usually involved) and the sympathetic may require treatment. In conclusion he warns that in ligating an artery, the sheath should not be ligated with it. Those who, like himself, have witnessed contracture develop after ligating the humeral artery, will appreciate the necessity for this precaution.

46. **Action of Autolysates.**—This is the opening lecture of the course on experimental and comparative pathology. Personal experimental research is described which shows, among other things, that the products generated in cells that have lost their vitality may have a pronounced effect on certain body functions. For example, with cirrhosis of the liver the cells die off, that is, they undergo autolysis, and the autolysates resulting pass into the circulation and by their toxic action check production of urine. On the other hand, with cirrhosis of the kidney or interstitial nephritis, the diuresis is increased, for the autolysates from kidney tissue do not have the property of reducing the secretion of urine but rather tend to increase it. The edema of the legs with the ascites of cirrhosis of the liver is explained by the insufficiency of the kidneys resulting from the toxic action of the liver autolysates. The edema may precede the ascites and is not a consequence of it. Further research is necessary on the effect of autolysates from partially devitalized organs left in the body. The kidney is the organ best adapted for such experimental work. For instance, if the vascular pedicle of the kidney is ligated and the circulation interrupted for seven or eight hours and then restored, a rise in blood pressure follows and the cardiac systole is reenforced. This experiment reproduces what must occur in the course of pathologic autolysis, and explains the mechanism of the two most important manifestations of interstitial nephritis, namely, the hypertension and the hypersystole.

Progrès Médical, Paris

Oct. 19, 1918, **33**, No. 42

49 *Plastic Motor Orthopedic Surgery. A. Bernard.—p. 353.
50 Chart for Roentgen Examination of Stomach. Dubois-Roquebert.—p. 356.

Oct. 26, 1918, **33**, No. 43

51 Foreign Bodies in Esophagus. Bichaton and R. Rendu.—p. 361.
52 *Mania from Otitis; Recovery. H. Damaye.—p. 362.

49. **Plastic Motor Surgery.**—Bernard is enthusiastic over the promise of what he calls *orthopédie cinéplastique*. Although the experiences are not very numerous, the results speak so eloquently, he declares, that this method of plastic motor surgery ranks among the greatest discoveries of orthopedic surgery. It should be accepted with entire confidence and be applied on a large scale in order to restore the functional use of limbs to the maimed. From the physiologic point of view, the plastic motors are capable of doing at the same time the same kind and the sum total of the work of the masses of muscles which they replace. The amount accomplished does not reach its maximum unless the prosthesis is perfectly adapted to the shape and force of the plastic motor. To realize this vitalization of the prosthesis, the surgeon and the mechanical orthopedist must work together in order to solve in a satisfactory manner this difficult problem of such immense social interest. Bernard reviews the literature and gives illustrations of different technics, but does not speak of any personal experience with the method.

52. **Mania with Otitis.**—Damaye's patient was a military telephone operator and he suddenly developed subacute mania in the course of a staphylococcus double otitis media. Both persisted for nearly two months when they gradually subsided and by the end of the month normal conditions were restored. The mania was the first symptom that called attention to the otitis. A mastoid operation became necessary, and after this gradual recovery followed under a silver salt, raw meat, cacodylate and iodin. The mania was of the stereotype form with confusion.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 9, 1918, **48**, No. 45

53 *Immune Substances in Treatment of Tuberculosis. H. Wassitsch and C. Spengler.—p. 1489.
54 The Deycke-Much Partial Antigens. F. Oeri.—p. 1498.
55 *Neo-Arsphenamin in Treatment of Anthrax. J. L. Gsell.—p. 1505.

53. **Immune Substances in Treatment of Tuberculosis.**—This communication from Spengler's Institute at Davos reports the application of his I K method of treatment in 484 cases. The results are said to surpass those obtained by any other treatment and in a shorter time. The bacilli disappeared from the sputum in twice the proportion realized in similar groups in other sanitariums at Davos.

55. **Neo-Arsphenamin in Anthrax.**—The case reported can be classed with those published by Becker, Bettman and others in which intravenous injection of neo-arsphenamin arrested severe anthrax. A total of 0.75 gm. was injected in two days, and improvement was evident at once.

Policlinico, Rome

October, 1918, **25**, Surgical Section No. 10

56 *Albee's Operation in Pott's Disease. D. Maragliano.—p. 289. Conclusion.
57 Foreign Body in Esophagus Perforates Mediastinal Artery. G. Massa.—p. 305.
58 Putrid Infection of Wounds. L. Fioravanti.—p. 313. To be cont'd.

56. **Albee's Operation for Pott's Disease.**—Maragliano's impressions are decidedly favorable for this operation, provided too much is not expected of it. He gives the details of his thirty-four cases, and says that the poverty of the families explains the small percentage of durable successes. There should be five or six months of horizontal reclining, and the corset should be worn for at least another six months. These conditions could not be realized in all his cases.

Riforma Medica, Naples

Oct. 12, 1918, **34**, No. 41

59 Three-Day Fever. U. Gabbi.—p. 806.
60 *Color Reaction in Typhoid. E. De Silvestri.—p. 812.
61 Serums and Vaccines in Eye Infections. G. Molinari.—p. 820.
62 The Mortality from Tuberculosis in Italy. A. Botti.—p. 825.

Oct. 19, 1918, **34**, No. 42

63 Case of Grave Myasthenia. Cardarelli.—p. 830.
64 *Projectile Free in Right Ventricle. M. Ponzio.—p. 834.
65 *The Febrile Pandemic. C. Minerbi.—p. 836.

Oct. 26, 1918, **34**, No. 43

66 Influenza. A. Marrassini and L. Merelli.—p. 850.
67 *Tests to Study Changes in Motor Functions. C. Besta.—p. 852.

68 *Referendum in Febrile Pandemic. N. Pane and others.—p. 855.
69 Induced Pneumothorax for Wounds and Effusions in Chest. E. Aievoli.—p. 859.
70 Biology of the Pneumococcus. A. Ferrannini.—p. 862.

60. **Color Reaction in Typhoid Urine.**—De Silvestri calls attention anew to this very early and constant reaction in typhoid urine, and gives some cases in which the findings of this test were all that testified against typhoid until the course of the cases confirmed its evidence. He discovered the reaction in studying the phenols in the urine, and several years' experience has confirmed its reliability. He would like to have those who apply this test inform him of their experiences with it. His address is E. de Silvestri, Via Principe Amedeo 29, Turin, Italy. The test is the color reaction when 3 c.c. of filtered urine is cautiously added from a pipet to a mixture of 2 c.c. of ferric chlorid and 4 or 5 drops of pure sulphuric acid. At the zone of contact between the reagent and the urine, a brownish yellow tint appears and spreads upward. A ring of turbidity, with greenish reflections, forms on the surface of the urine, but this disappears on agitating the test tube. The brownish yellow, or chestnut tint, however, shows no change on agitating or heating the fluid. The reaction occurs without heating. If there is precipitation of urates and albumin, it is better to repeat the test with urine freed from them. This reaction is positive in the first days of typhoid and paratyphoid B and, although less pronounced, in paratyphoid A.

64. **Shrapnel Ball Free in Right Ventricle.**—The projectile had entered tangentially to the iliac crest and lodged in the wall of a large vein. It dropped in time into the lumen of the vein. Symptoms on the part of the heart marked its passage through the right auricle, but after it reached the ventricle it has apparently caused no further disturbances during the year to date.

65. **The Febrile Pandemic.**—Minerbi emphasizes certain points in which the present epidemic in its incidence at Ferrara seems to differ from influenza, especially the sparing of the well-to-do; the fact that the congestion in the nose and accessory cavities is brief and fleeting; the pneumonia is lobular, instead of lobar, while the glands in the neck and carotid sulcus are not palpable, contrary to what occurs from the first in influenza. Those who abstain from salicylates and other drugs seem to get along better.

67. **Tests for Changes in Motor Functions.**—Besta is professor of nervous and mental diseases at the University of Messina, and he here describes a series of tests which reveal impairment of the sense of direction, like Bárány's finger-touching test. He shows that a lesion in the parietal lobe may give findings simulating those with a cerebellar lesion under certain conditions. He has worked out a number of other tests, besides Bárány's, in which various groups of muscles are called on, as he describes in detail with their interpretation, movements of the neck, trunk, and limbs. The value of these tests in neurologic examination after skull wounds is emphasized. They constitute, he says, "unless I am mistaken, a completely new chapter of the physiopathology of the cerebral cortex." For example, if the arms are raised vertically and, with the eyes bandaged, the trunk is twisted around and then back to place, the trunk is left at more or less of an angle to its primal position in certain pathologic conditions. The legs behave differently in this test on the sound and affected side. Walking along a straight line, back and forth, for 30 or 40 feet and then continuing with eyes bandaged reveals in pronounced form the tendency to deviate to right or left.

68. **The Febrile Pandemic.**—In these further contributions to the referendum, Pane, Liverato, Sclavo and Ascoli contribute their experiences. The latter remarks that certain circumstances suggest the possibility of an immunity and hence of specific vaccination. Copious drinking of fluids and sugar solution by proctoclysis were his main reliance. In the plethoric and the asphyxiated, he drew 500 c.c. of blood. He also speaks rather favorably of addition of a silver salt to the proctoclysis fluid. In addition to the Italian referendum running through several numbers, a full review is given in each number of publications on the subject in other countries, but the *Riforma* does not commit itself to a diagnosis, merely calling it the febrile pandemic. The medical senators, Cardarelli, Bozzolo, Micheli and Senise describe their experiences as chiefs of medical clinics. Bozzolo uses a mask that is held with wire far enough from the mouth to keep it from getting moistened. Against the pneumococci in the mouth, he advises a weak solution of ethyl-hydrocuprein (optochin) with a little thymol. Antipneumococcus and anti-streptococcus serum have been used to advantage, as also convalescent's serum, but he has formed no definite judgment as yet. The young are mainly affected in his district (Turin). Micheli's impressions are favorable as to the benefit from early injection of antistreptococcus serum. Possibly it serves only as a heteroprotein therapy.

Rivista Critica di Clinica Medica, Florence

Sept. 21, 1819, **19**, No. 38

71 *Jacksonian Epilepsy. F. Schupfer.—p. 445. Concluded in No. 39, p. 457.
72 Tonus and Hyperexcitability of Vagus-Sympathetic System. L. Siciliano.—p. 448.

71. **Jacksonian Epilepsy.**—Schupfer's patient is a boy of 14 who has been having jacksonian epilepsy for two or three years, the focus being probably at the foot of the second right frontal convolution. Analysis of the features of the case suggests a gliomatous tumor in this region although trephining in the rolandic region brought such relief that there have been no symptoms since. The diagnosis was sustained by the negative findings in the rolandic region.

Archivos Españoles del Aparato Digestivo, Madrid

October, 1918, **1**, No. 10

73 The Hypotheses of Energy. (Bioenergética y termoquímica alimenticia.) R. y Abaytúa.—p. 433.
74 *Partial Colectomy. L. Urrutia.—p. 451.

74. **Partial Colectomy.**—It is almost impossible to differentiate between a tuberculous and a malignant process in the colon, but this is immaterial, Urrutia remarks, as partial colectomy is required for both, unless the lungs or small intestine are too much involved. The zone of lymphatics has to be thoroughly removed in either case. An inoperable tuberculous process may improve to such an extent under exclusion and heliotherapy that in a few months the process can be resected, or it may heal completely. In one of his cases all the disturbances vanished completely in a few months after unilateral exclusion with ileotransversostomy, and the large tumor could be no longer palpated. The lymph glands below as well as those above should be removed with a carcinoma of the cecum or appendix, and he advises the same even with a purely tuberculous process, as exact differentiation is so difficult and there is always danger of secondary malignant degeneration. He makes a point of extensive resection even although in some of his cases excellent functional results were obtained with economical resection. Side-to-side anastomosis with the Murphy button, by Pauchet's aseptic technic, is by far the preferable technic, he declares. The whole operation can be done without changing gloves. He knows of two cases with no signs of recurrence eleven and seventeen years after a radical operation for cancer of the cecum. The arrangement of lymphatics of the colon, in comparison to those of the small intestine, explains why malignant disease of the colon is so much less liable to spreading and metastasis than with cancer of the small intestine.

Archivos Españoles de Pediatria, Madrid

August, 1918, **2**, No. 10

75 *Adenitis of Dental Origin. Landete.—p. 449.
76 Albumin Milk in Infant Feeding. A. R. Lozano.—p. 472.

75. **Adenitis of Dental Origin.**—Landete is professor in the dental school. He gives an illustrated description of the relations between the glands in the face and neck and the teeth, tracing the development of infectious processes in connection with different teeth, especially in children. The differential diagnosis is discussed, and the advantages of vaccine therapy are extolled when the adenitis is once established. If the effect of the vaccine in a few hours is slight or transient, this warns of the presence of pus which must be cleared out of the way before the vaccine can exert its

efficacy. The focus must be drained continuously. He prefers for this a loop of fine copper wire, such as is used for electric light, the outer ends turned back, and the whole held in place with a strip of gauze. This little loop can be inserted and removed without inconvenience through a minute incision. He prescribes flushing with an antiseptic unless the cavity is so large that the Carrel method can be applied. Even when the adenitis is only indirectly connected with the mouth, the vaccine made from the mouth germs still manifests its efficacy. Although if the streptococcus or other germ is positively recognized, its specific vaccine can be used. Otherwise the mouth vaccine should be given the preference, and he reports striking success with this even with severe furuncles, anthrax, etc., quite far from the mouth. On the other hand, he has sometimes obtained good results with other vaccines, the staphylococcus for example, in buccal and perimaxillar infections. The vaccine he uses is made by the municipal laboratory from a mixture of various specimens of streptococci and a gram-negative diplococcus isolated from the roots of teeth recently extracted, from pus from osteomyelitis of the jaws, from the exudate of a pathologic eruption of the teeth, etc. These bacteria are found constantly in healthy mouths and in polymicrobian buccal infection. They can be readily cultivated in fresh and unaltered human blood or the usual culture mediums. The vaccine contains 250 millions per cubic centimeter, killed by chloroform and heating to 55 C. for half an hour. The sterility is tested by aerobic and anaerobic cultures, and by subcutaneous injection of 2 c.c. of the vaccine in a guinea-pig, weighing 300 gm., without appreciable local or general reaction. Wounds of the mouth, complications of carious teeth, adenitis, osteomyelitis, etc., all benefit both in prophylaxis and in treatment. For the latter he injects 0.5, 1, 1.5 and 2 c.c. in turn with intervals of from two to five days. In prophylaxis, he injects 0.5 c.c., doubling this dose after two days. For children of 5 to 10 he uses a half of the adult dose, and from 3 to 5 a quarter. The doses should also be reduced for patients with heart or kidney disease or suspected of tuberculosis. There may be a general, local or focal reaction, and these should be supervised to avoid the focal reaction, in particular. The vaccine kept in a cool dark place has shown no appreciable alteration over periods of more than a year.

Brazil-Medico, Rio de Janeiro

Sept. 21, 1918, **32**, No. 38

77 New Sporozoon (Pterocephalus leitãodacunhai n. Sp.). G. Hasselmann.—p. 297.
78 Brazilian Gregarinas. X. C. F. Pinto.—p. 297.
79 *Early Diagnosis of Syphilis of Nervous System. D. Madeira.—p. 297.

Sept. 28, 1918, **32**, No. 39

80 Brazilian Gregarinas. XI. C. F. Pinto.—p. 305.
81 *Exploratory Puncture of Liver. O. Clark.—p. 305.
82 Treatment of Lumbricosis in Children. L. Gonzaga.—p. 310.

79. **Colloidal Gold Reaction in Diagnosis of Syphilis of Nervous System.**—Madeira's experiences with this test early in involvement of the nervous system have been extremely favorable. He has been a pioneer with it in Brazil.

81. **Dangers and Fallibility of Exploratory Puncture of the Liver.**—Clark reports a case in which the minute injury from the tip of the needle entailed fatal hemorrhage, although necropsy demonstrated that no large vessel had been injured. In two cases the puncture gave positive findings, but the diagnosis had been certain before and the operation followed at once. In another series the exploratory puncture had failed to reveal the pus pocket discovered at necropsy. In one young man three punctures had been made, in different interspaces, all negative, but that side of the chest contained 6 liters of chocolate pus with total atrophy of the lung. In another case with various negative punctures, the pus had accumulated in the peritoneum, and was encapsulated by false membranes. In another case necropsy revealed the liver studded with a hundred small abscesses, but puncture repeated at several points had not happened to hit one.

Cronica Medico-Quirurgica, Havana

June, 1918, **44**, No. 6

83 Mutual Professional Respect Is the Source of Prestige for Science. J. S. Fernandez.—p. 324.
84 Influence of Animal Experimentation on the Progress of the Medical Sciences. A. Agramonte.—p. 329.
85 Nascent Oxygen in Stomach Disease. R. G. San Martin and P. A. Barillas.—p. 340.
86 *Can Trachoma Be Cured? J. Santos Fernandez.—p. 343.
87 Ileus and Its Treatment. E. Yaniz.—p. 349.

86. **Can Trachoma Be Cured?**—Santos Fernandez remarks that in his many years of practice few have been the cases of actual trachoma which he has seen completely cured. The disease is rare in Cuba even today, and he thinks that the diagnosis is often erroneously made both by the present health authorities of Cuba and those during the American Intervention. When the eye disease is unilateral or when it is easily cured, trachoma can be excluded. With time and efforts, trachoma can be exterminated, like yellow fever. It is a poverty and filth disease, and once established, he reiterates, it is never cured, and the diagnosis can be made positively only on the course of the disease.

Medicina Ibera, Madrid

July 6, 1918, **4**, No. 35

88 Exclusion of Appendix. G. N. Juarros.—p. 3.
89 Varicose Soil and Skin Diseases. Sicilia.—p. 4.
90 *Acute Mastitis with Chronic Course. F. Lozano.—p. 5.

July 13, 1918, **4**, No. 36

91 Inconveniences of Shortened Procedures for Wassermann Reaction. Escudé.—p. 27.

July 20, 1918, **4**, No. 37

92 *Influence of the Influenza Epidemic on Pulmonary Tuberculosis. A. N. Blasco.—p. 54. Commenced in No. 35, p. 1.
93 Treatment of Psoriasis. J. S. De Grado.—p. 56.
94 *Treatment of Tuberculous Meningitis. J. M. Bausá.—p. 58.

90. **Acute Mastitis with Chronic Course.**—Nine days after normal delivery the mastitis developed, and the temperature kept febrile for a month, with edema. The latter was ascribed to a toxic action on the heart from the suppurating mastitis, and the leukocytosis of 18,000 compelled a more rigorous search for concealed pus. But there was no retromammary abscess and the whole subsided just as the deeper operation was contemplated.

92. **Influence of Influenza on Pulmonary Tuberculosis.**—Blasco reports that among seventy-two tuberculous outpatients in his charge, with various phases of pulmonary tuberculosis, taking tuberculin treatment, fifty developed influenza during the epidemic but twenty-six seemed to throw it off without harm. In twenty-four, however, the disease was whipped up to a much more active course, invading hitherto sound regions even in 2 of the 14 in the first stage. The tuberculin treatment did not seem to have any mitigating influence on the pandemic disease.

94. **Tuberculous Meningitis.**—Bausá deplores that he has never been able to save a child with tuberculous meningitis in his sixty cases, and yet, he exclaims, it is a local disease; it does not kill by septicemia, and most of the symptoms are the work of the high pressure. The lesions in the meninges are not incompatible with life; the meninges can rank with the peritoneum and the pericardium, and neither peritonitis nor pericarditis are inevitably fatal. We have means to keep the pressure reduced and apply topical treatment. The disease with its apparently acute course, is really subacute or with a chronic tendency. The "acutization" may be from reinfection or lessening of the defensive forces. The cerebrospinal fluid reforms rapidly, so that the relieving puncture must be frequently repeated, and large amounts withdrawn without fear. Or a cannula might be left as a permanent drain and some antiseptic applied directly to the meninges. He has no suggestion to offer yet as to the antiseptic that might be used, but heliotherapy, local heat and antiserums might be used as adjuvants. Tuberculin treatment might prove dangerous with the meningitis well under way, but it might be of great assistance in warding it off if given during the prodromal phase of vague and fleeting symptoms difficult to note and appreciate.

Prensa Medica Argentina, Buenos Aires

Sept. 10, 1918, **5**, No. 10

95 *Peritonitis in Infants. M. Acuña and A. Casaubon.—p. 97.
96 *Problem of Treatment of Tuberculosis. P. M. Barlaro.—p. 99.

Sept. 20, 1918, **5**, No. 11

97 Maragliano's Method of Immunizing against Tuberculosis. P. M. Barlaro.—p. 105.
98 The Fifth Cusp. A. Cabanne.—p. 107.
99 Gallstone Cholecystitis and Duodenal Ulcer. Excision. Recovery. N. Tagliavacche.—p. 110.
100 Rhinolithiasis. M. Galdós.—p. 111.

95. **Purulent Peritonitis in Infants.**—Acuña and Causaubon report a case in a child 21 days old. The infection had probably occurred by way of the umbilicus, and the spleen was found ruptured at necropsy. In a second case the infant was nearly 5 months old and the peritonitis was evidently secondary to enterocolitis. A third infant only 3 weeks old was taken suddenly in the midst of perfect health, and necropsy disclosed stenosis in the small intestine as the only thing to which the peritonitis could be attributed. All the children were breast fed, but the first showed signs of inherited syphilis. Hydrocele is frequently encountered in such cases, with edema of the scrotum, as an early sign of the peritonitis. The stools were normal in two of these cases and there was constipation in the third.

96. **The Treatment of Pulmonary Tuberculosis.**—Barlaro reiterates that tuberculous infection is readily curable, that the organism is able alone to conquer it. What makes it serious is that other infections become installed, against which the organism is powerless, or the organism is allowed to become so saturated with toxins that it is unable to keep up the fight. There is no need for search for a remedy to cure tuberculosis. What we must seek are means to act on an organism saturated with the tuberculous toxins, and to act on the associated infections. The main point is to strengthen the organism in its fight against tuberculosis before it has become so impregnated with the toxins. He urges efforts to diagnose the tuberculous infection before it becomes localized in any point or organ, and before the tubercle bacillus has reached the stage of the Koch bacillus. In this stage it is resistant to all measures and is unable to serve as an antigen. This is partly on account of its resistant shell and partly because by this time the organism is too much debilitated to be able to manufacture antitoxins to any amount. Tuberculous infection attacks every one practically, and usually the organism conquers it alone and is left more resistant to later infection.

Revista Española de Medicina y Cirugia, Barcelona

October, 1918, **1**, No. 4

101 *Characteristic Palograms. M. Gil-Casares.—p. 163.
102 *Eclampsia. F. Proubasta.—p. 172.
103 *Hypochondria. C. Juarros.—p. 177.
104 Popliteal Aneurysm. Trias Pujol.—p. 180.
105 Influenza. P. Esquerdo and others.—p. 185; p. 189.

101. **Palography.**—Gil-Casares gives a number of typical photographic reproductions of the pulse obtained with his palograph. With this it is possible, within certain limits, to estimate the force of the pulse besides the rhythmic aspect, as he explains in detail.

102. **Eclampsia.**—Proubasta analyzes the different theories that have been advanced to explain the pathogenesis of eclampsia, citing various authors. The only certain findings to date, he says, are that the liver is usually and most particularly affected; that there is profound toxemia, and that a substance is found in the serum which acts like epinephrin and resembles the amins, especially those of pituitary origin.

103. **Hypochondriac Ideas.**—Juarros means by this term an exaggerated or baseless preoccupation in respect to the health. Some consider it the result of abnormal sensations of visceral origin, or the abnormal exaggeration from autosuggestion of a normal sensation. The constitutional hypochondria should be distinguished from the occasional, and with the latter, the cases of mental origin must be distinguished from those which have some somatic foundation that may be sought and removed. In short, he declares, the complaints of a hypochondriac deserve serious attention instead of being disregarded as is often the case.

Revista Ibero-Americana de Ciencias Medicas, Madrid

September, 1918, **40**, No. 169

106 Aconite in Treatment of Neuralgia. E. P. Noguera.—p. 161.
107 Dislocations and Fractures of the Elbow. S. G. Hurtado.—p. 171. Cont'n.
108 Anorectal Disease. Differential Diagnosis. F. M. Suarez.—p. 177.
109 Psychologic Analysis of St. John the Evangelist. Herrero.—p. 191.

Revista de Medicina y Cirugia, Havana

Oct. 10, 1918, **23**, No. 19

110 *Aprosexia of Nasal Origin. H. Segui.—p. 527.
111 Genesis of the Heart Beat. J. F. Arteaga.—p. 531.

Oct. 25, 1918, **23**, No. 20

112 *Influenza and Ophthalmology. R. Guiral.—p. 557.
113 Teratosoma Monster. R. M. Orihuela.—p. 559.

110. **Aprosexia of Nasal Origin.**—Segui remarks that inability to concentrate the attention, as a consequence of mouth breathing, is not restricted to children. He reports the case of a woman of 36 and of a man of 41, both of whom suffered from physical and psychic depression and aprosexia from the obstruction to normal breathing and hence accumulation of toxic wastes in the body. The woman had frequent headaches and had lost all her energy, both physical and mental. The inferior turbinates showed such congestive hypertrophy that they almost totally obstructed the passage of air. He reduced both with the actual cautery and gave a little strychnin. In three weeks after the last cauterization the passage was normally permeable and the woman's general condition was normal once more. The man did not have headaches but for over a year had felt incapable of any sustained effort or clerical work. After removal of some obstructing polyps in the nose, normal conditions were restored. In Havana the medical inspectors order an operation for schoolchildren who are mouth breathers.

112. **Ocular Complications of Influenza.**—Guiral found the influenza bacillus constantly in the numerous recent cases of what seemed to be Week's conjunctivitis except that the patients complained of blindness. The redness is not diffuse; there seemed to be a narrow space around the cornea before beginning of the hyperemia. The fibrinous secretion was not suppurative, and there was no pain, no sensation of sand in the eye, but the eyelids and region were puffy. One man of 50 had both corneas ulcerate, with rapid destruction of tissue. The influenza bacilli and the pneumococcus were cultivated from the secretions of the eyes. There was no pain in the eyes, but the general symptoms of influenza were marked. Guiral cauterized the ulcerations and applied a 1:40 solution of zinc sulphate twice a day, but vision in one eye was lost completely. Almost all the cases had more or less ulceration of the cornea.

Revista de Medicina y Cirugia Practicas, Madrid

Sept. 7, 1918, **120**, No. 1521

114 *Influence of Exercise on Arterial Pressure. M. Bañuelos and S. V. Portela.—p. 257.

Sept. 14, 1918, **120**, No. 1522

115 *Version with Placenta Praevia. F. Villanueva.—p. 289.

Sept. 21, 1918, **120**, No. 1523

116 *Ozena. I. F. Seco.—p. 321.

114. **Influence of Physical Exercise on the Arterial Pressure.**—Bañuelos and Portela tabulate the findings in tests of boys and young men before, during and after exercising in a gymnasium. They found that moderate physical exercise reduced the arterial pressure, and that this reduction was more pronounced the less the training of the subject. Violent physical exercise raised the pressure.

115. **Limits for Braxton Hicks Version with Placenta Praevia.**—Villanueva's conclusions from his extensive experience are that with vertex presentation this procedure should be restricted to emergency cases with much loss of strength from hemorrhages during the latter part of pregnancy, compelling rapid termination of the pregnancy. Outside of these conditions, and when the condition is not very grave, he thinks that other measures will generally answer the purpose. Tamponing the vagina after rupture of the membranes has often modified conditions favorably in his experience. Although the gauze does not come in contact with the bleeding point, yet the stimulus from its presence is felt throughout the uterus and the contractions assume a new character, the head descends and blocks the bleeding vessels, and the projecting part of the placenta is pushed along out of the way. This can be hastened by injection of pituitary extract, which reenforces the stimulus from the tampon.

116. **Ozena.**—Seco reports favorable experiences with an autogenous vaccine in some cases of ozena. He began with a stock vaccine, and this alone answered the purpose in some cases, but in others he supplemented it with the autogenous. It seems to sterilize the nasal fossas, and by inducing more copious secretion in them clears them of crusts and there is no further tendency to fetidity.

Semana Medica, Buenos Aires

Sept. 5, 1918, **25,** No. 36

117 *The Chemistry of Gastric Juice. F. Landolph.—p. 301.
118 *Pomegranate in Treatment of Amebiasis. R. F. Vaccarezza. —p. 308.
119 Nephrectomy for Tuberculosis. M. Mackintosh.—p. 312.
120 Hygiene of Children's Growth. P. Luisi.—p. 316.
121 The Ovular Theory of Extrauterine Pregnancy. V. Widakowich. —p. 323.
122 Pubiotomy versus Symphysiotomy. T. A. Chamorro.—p. 332.

Sept. 12, 1918, **25,** No. 37

123 Differential Diagnosis of Retroperitoneal Tumors. J. R. Goyena. —p. 341.
124 *Abscess in Side of Pharynx. C. R. Castilla.—p. 346.
125 Tuberculin in Diagnosis and Treatment. J. J. Vitón.—p. 347.
126 *Morbid Associated Movements. C. S. Damel and A. Natale. —p. 352.

117. **Chemistry of Gastric Juice.**—Landolph here describes (in French) his research on the diverse fractions of distillation of the gastric juice of dogs, demonstrating, with precision, by weight, the chlorin obtained in the form of silver chlorid. The first fractional distillate does not modify litmus paper, and hence cannot contain more than traces of chlorin. There is no acid reaction until the gastric juice begins to decompose. He compares the findings with his technic with those of the Hayem-Winter method.

118. **Treatment of Amebiasis with Pomegranate Bark.**—Vaccarrezza does not venture to pass judgment on this treatment but merely reports two cases in which the infusion of the pericarp of a pomegranate was given by the mouth in a pint of milk, and an infusion of the bark of two was given in an enema to be retained. A clinical cure was realized in each case and the stools of one patient now are free from amebas. The other has been lost to sight.

124. **Abscess in Side of Pharynx.**—Castilla reports two new cases, bringing to four his record of lateropharyngeal abscesses. In each case the child developed suddenly fever and extreme prostration, with difficulty in swallowing and moving the head, and the neck looked swollen and was tender. In six or eight hours from the first symptoms a tumor was evident in the side of the pharynx. In all his cases the whole clinical picture promptly retrogressed in from twenty-four to thirty-six hours under hot applications, disinfection of the nasopharynx and injection of a vaccine (Mendez' haptinogeno neumo). No surgical measures seem to be necessary. His fourth patient was a 3 months babe, and lumbar puncture had been done on suspicion of meningitis.

126. **Associated Morbid Movements.**—Damel and Natale describe four new cases of involuntary movements of jaws or eyelids associated with chewing or speaking movements. One case was in a healthy married man of 24 with ptosis of the right eyelid from birth. When told to open his mouth wide, the eyelid rises symmetrical with the other eye, as also when he twists his jaw to the left.

Siglo Medico, Madrid

Aug. 31, 1918, **65,** No. 3377

127 *Prophylaxis of Malaria. G. Pittaluga.—p. 712.

Sept. 7, 1918, **65,** No. 3378

128 *Pathology of the Mediastinum. A. S. Quesada.—p. 730.
129 *Professional Blunders. J. M. A. Sanz.—p. 735.
130 *Research on Dynamics of Heart. M. B. Garcia.—p. 737. Conc'n.

127. **Prophylaxis of Malaria.**—This is a detailed report on the measures that should be adopted to ward off malaria in the public works now under way in Aragon. The chief engineer has appealed to the Instituto Nacional de Higiene, of which Ramon y Cajal is in charge, to aid in stamping out the endemic malaria which has already incapacitated a number of the workmen.

128. **Pathology and Exploration of the Mediastinum.**—Quesada analyzes five different types of findings in the mediastinum and the differential diagnosis therefrom. The arteries usually escape compression, but the veins are liable to be compressed at different points, with widely different disturbances resulting. Compression of nerves is liable to induce a spasmodic cough, attacks of dyspnea, recurrent paralysis, bradycardia, nausea or diarrhea, all of which were represented in the cases described. There is also liable to be spasm of the glottis, respiratory arrhythmia and hyperacidity as manifestations of pressure on the pneumogastric nerve. Pressure on the sympathetic may likewise induce exophthalmos, partial sweating, tachycardia, psialorrhea and lacrimation. Uneven action of the diaphragm and phrenic neuralgia may also be observed. Intercostal neuralgia from pressure on intercostal nerves is more common. The symptoms from compression of vessels are more pronounced when the anterior mediastinum is involved; symptoms from the air passages and esophagus with involvement of the posterior mediastinum, and the liability for pain to develop is greater with the latter. In one of the cases a tuberculous process in lung and ganglia masked an aneurysm of the aorta although it might have been suspected from the spasmodic cough, the pains darting to shoulder and arm, and the history of old syphilis. In another case a man of 39 developed edema of the neck and face, with collateral circulation over chest and umbilical region, tachycardia, psialorrhea, exophthalmos, lacrimation and rebellious diarrhea. This combination of symptoms suggested pressure on the sympathetic nerve, and radioscopy revealed a tumor, evidently malignant.

129. **Professional Blunders.**—Sanz records some historical instances of bad luck pursuing some of the most noted physicians of different ages, or their professional blunders.

130. **Dynamics of the Heart.**—Garcia has been conducting research on the chronotropic influence exerted on the heart by stimulation of the pneumogastric. In this concluding installment he describes the various effects produced according as the ventricle is more or less filled and beating in isometric contraction. The filling of the ventricle, even partially, modifies the effect in a most pronounced manner.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 5, 1918, **2,** No. 14

131 *The Chin and Speech. A. J. P. van den Broek.—p. 1159.
132 *Disease of Both Lateral and Posterior Columns in Spinal Cord. T. Meinema.—p. 1168.
133 Influence of Saponin on Lipase Action. A. L. Flohr.—p. 1177.
134 *Gumma in Orbit. A. A. M. Nelissen.—p. 1183.
135 Cerebral Symptoms in Influenza. J. Lankhout.—p. 1187.

131. **The Chin and Speech.**—Van den Broek is professor of anatomy at the University of Utrecht, and he here discusses the evolution of the chin as a consequence of spoken language. Only when articulate speech became possible were human beings able to manifest their feelings and thoughts to each other, and then began the rapid upward rise. The muscular movements which the use of speech entailed modified the shape of the chin to what we see now.

132. **Associated Spinal Cord Disease.**—Meinema relates that in the course of a few months recently he encountered three cases of combined funicular myelitis. Examination of the blood gave typical findings in all, but there was anemia enough to attract attention only in one of the three cases. This emphasizes the necessity for examining the blood as a routine procedure in every case of spinal cord disease. In one of the cases the only symptoms had been mental, and the discovery of a grave organic spinal disease was a surprise. Delirium, apathy or somnolency have been noted in different cases. A hysteriform set of symptoms sometimes ushers in the trouble. Degeneration of the posterior tracts entails atony, loss of certain reflexes and ataxia, while degeneration of the lateral tracts entails increased tonus, exaggerated reflexes and motor weakness. The combination of the two thus induces a picture that it is easy to imagine, the symptoms of tabes or of spastic spinal paralysis obtaining the upper hand as the case may be. This combination, however, is very rare. His patients were a woman of 29 and two men of 40 and 51. Tabes was the first presumptive diagnosis, but the Wassermann reaction was negative. There was nothing

in the history to suggest a toxic pseudotabes. The blood count in the three cases showed from 1,992,000 to 2,500,000 reds, with a color index of 1.8, 1.35 and 1.75; from 3,500 to 4,500 whites, with 71 per cent. neutrophils and 21 per cent. lymphocytes in the woman. One man showed 75 per cent. polymorphonuclear leukocytes and 25 per cent. lymphocytes. Only one of the three has died and necropsy was not possible in this case. The lesions responsible for the symptoms evidently did not extend into the brain. He analyzes the literature and emphasizes that these changes in the spinal cord do not occur exclusively with pernicious anemia. They have been encountered associated with leukemia, septicemia, ulcerative endocarditis, malaria, cancer, diabetes, tuberculosis, alcoholism, lead poisoning, Addison's disease, pellagra and paralytic dementia. The degeneration in most cases seems to follow the blood vessels. Henneberg thinks that some hemolytic toxin is probably involved which acts to induce both the anemia and the funicular myelitis. The anemia is not always of the pernicious type. MacConnell reported in 1907 a case in which, after a severe hematemesis, atrophy of the optic nerve developed and the combined spinal-cord tracts affection. The latter retrogressed in time, but the optic atrophy persisted. Von Hasselt's case is also instructive, the patient suddenly presenting the symptoms of the combined tracts affection after a severe hemorrhage from a tubal abortion. The woman died in a day or two, but nothing pathologic could be discovered beyond intense anemia of the tracts. Evidently death had occurred before histologic changes had become manifest. If toxins are responsible, we would expect to find the most pathologic changes in the more vascular regions, but this is not the case. The regions with the poorest blood supply seem to suffer most, and these would naturally feel most severely any depreciation in the quality of the blood, and, in these regions, the parts would suffer most which are worn out most.

134. **Tumor in Orbit.**—The woman of 42 complained of disturbance in vision in her left eye. She was fitted with glasses but returned in two weeks with the eyeball protruding from the rapid growth of a tumor. It seemed to be a phlegmon in the orbit, secondary to empyema of the maxillary sinus, but the sinus when opened was found free from pus. Roentgen treatment was applied while potassium iodid was given daily. The tumor in the orbit rapidly retrogressed and the prompt and complete recovery confirmed the assumption of syphilis. The woman's four healthy children and the history of the family explained the case as one of tardy inherited syphilis. The Wassermann reaction had been negative. The inflammation in the maxillary sinus seemed to be a casual secondary infection.

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137 *The Stomach in Cholelithiasis. C. Wessel.—p. 1233.
138 *Experiences with the Danish Red Cross Ambulance in Finland. O. Chievitz.—p. 1256. Conc'n.

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139 Appendicitis at Copenhagen. P. Verning.—p. 1281. Cont'n.
140 Complications of Distortion of the Knee. H. B. Dahl.—p. 1289.

136. **Nonsyphilitic Mental Disease in Syphilitics.**—Wimmer reviews the present status of our knowledge of the manifestations of syphilis in the nervous system, especially simple syphilitic psychoses. Those of the exogenous type resemble those with typhoid, malaria, alcohol, cocain, carbon monoxid, poisoning and diabetes, uremia, hyperthyroidism, etc. But when we encounter the endogenous form, periodic exacerbations of an inherited constitutional anomaly, of the manic depressive type or the various forms of paranoid, we must be very cautious in accepting a syphilitic origin. The probability is that it is a casual coincidence. In a case described, the man of 25 had presented symptoms of a tendency to dementia in the last few months, five or six years after contracting syphilis which had been given systematic treatment. The strong reactions in the spinal fluid, the connection with neurologic symptoms, and the subsidence of the dementia under specific treatment confirmed the assumption of a transient functional psychosis. Twelve other cases are described with full details in which mental symptoms of hysteria coincided with nervous manifestations. In the second stage of syphilis in one woman of 29, the clinical picture was very puzzling; dementia was assumed at first. In some other cases there was an attack of mania before the infection with syphilis. Necropsy confirmed the assumption of an old endogenous manic-depressive psychosis with recent syphilitic meningitis or paralytic dementia. In another case the paranoid psychosis with hallucinations seemed to be an exacerbation of a pronounced psychopathic constitution for which the unmistakable cerebral syphilis could not be held responsible. The cases reported demonstrate that even with the four syphilitic reactions positive in the spinal fluid, it does not follow that the psychosis observed is necessarily of syphilitic origin. At the same time, this is the general rule, and the reactions in the spinal fluid can usually be relied on. Coincidence of nonsyphilitic psychoses with cerebral or meningeal syphilis is very rare.

137. **The Stomach with Gallstone Disease.**—Wessel examined the stomach findings after different test meals, and with the roentgen rays in 205 persons with gallstones. An operation was done on 5 of the men, 70 of the women and one child. Among the points thus established was the reduction or complete suspension of production of hydrochloric acid when the gallbladder functioning was arrested. Hypochylia or achylia seems to be very frequent with cholelithiasis, and it seems to persist. Gastritis probably develops in time, rendering the achylia irreparable. It seems to be a reflex phenomenon and it is his impression that achylia is the rule after cholecystectomy. In his forty-one cases in which the stomach findings were investigated in cases of infectious processes in the biliary passages, hypochylia or achylia was the rule. The question as to the possibility of reflex achylia seems to have been definitely decided by this research. The discovery of this reflex achylia calls for prompt operation on the biliary passages before irreparable lesions are installed, and, further, it warns not to remove the gallbladder if it is in any way possible to save it. Rovsing has long combated the tendency for cholecystectomy, and these researches show that with this operation we may leave our patients with a permanent stomach affection. The achylia is an indication for a gallstone operation not only to ward off an irreparable gastritis, but because the bile passages seem to become infected more readily when gastric secretion is below par.

Wessel's statistics are not large but they are so conclusive, he says, that he marvels that greater attention has not been paid hitherto to the connection between achylia and infectious processes in the biliary apparatus. Another practical point emphasized by his research is that oil treatment and saline purgatives are contraindicated when there is achylia. In a number of his patients the achylia was what first gave the clue to the cholelithiasis. It is possible that some of our patients whom we have been treating for gastritis alone, may have unsuspected gallstones. Fluctuations in the hydrochloric acid content of the stomach are instructive, as also variable retention of the stomach content. In some of his cases the gallstones were evidently responsible for the eight hours' retention after a Bourget-Faber test meal. Roentgen examination usefully supplements the other tests, revealing possibly four hours' retention or a displacement of part of the stomach pulled aside by pericholecystitis processes. By these means we can detect the presence of gallstones that never have given rise to colics. A gallstone does not entail urobilinuria when it is resting, but any obstruction from it entails stasis of bile, and this is revealed by urobilinuria unless the obstruction is total. The jaundice and the clay colored stools are not so instructive as to complete obstruction, as the sudden disappearance of urobilin from the urine. The discovery of achylia, with a contemplated gallstone operation, warns against delay to save the stomach from further damage.

138. **Danish Red Cross Ambulance in Finland.**—Chievitz here concludes his rambling notes of his experiences in Finland, which have been published serially during several weeks.